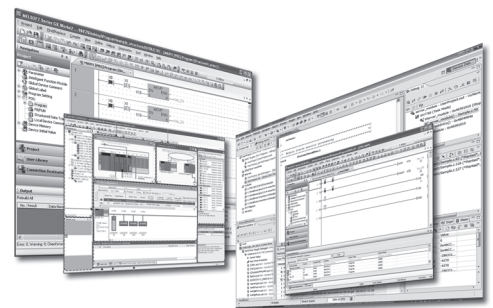# MITSUBISHI ELECTRIC

MELSOFT

Engineering Software

GX LogViewer Version 1
Operating Manual

-SW1DNN-VIEWER-M

SAFETY PRECAUTIONS

(Read these precautions before using this product.)

Before using this product, please read this manual carefully and pay full attention to safety to handle the product correctly. The precautions given in this manual are concerned with this product only. For the safety precautions for the programmable controller system, refer to the user's manual for the module used and the system manuals(MELSEC iQ-R Module Configuration Manual, QCPU User's Manual (Hardware Design, Maintenance and Inspection), and MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)).

In this manual, the safety precautions are classified into two levels: "⚠ WARNING" and "⚠ CAUTION".

⚠ **WARNING**	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.

⚠ **CAUTION**	Indicates that incorrect handling may cause hazardous conditions, resulting in minor or moderate injury or property damage.

Under some circumstances, failure to observe the precautions given under "⚠ CAUTION" may lead to serious consequences.

Observe the precautions of both levels because they are important for personal and system safety.

Make sure that the end users read this manual and then keep the manual in a safe place for future reference.

CONDITIONS OF USE FOR THE PRODUCT

(1) Mitsubishi programmable controller ("the PRODUCT") shall be used in conditions;

i) where any problem, fault or failure occurring in the PRODUCT, if any, shall not lead to any major or serious accident; and

ii) where the backup and fail-safe function are systematically or automatically provided outside of the PRODUCT for the case of any problem, fault or failure occurring in the PRODUCT.

(2) The PRODUCT has been designed and manufactured for the purpose of being used in general industries.

MITSUBISHI SHALL HAVE NO RESPONSIBILITY OR LIABILITY (INCLUDING, BUT NOT LIMITED TO ANY AND ALL RESPONSIBILITY OR LIABILITY BASED ON CONTRACT, WARRANTY, TORT, PRODUCT LIABILITY) FOR ANY INJURY OR DEATH TO PERSONS OR LOSS OR DAMAGE TO PROPERTY CAUSED BY the PRODUCT THAT ARE OPERATED OR USED IN APPLICATION NOT INTENDED OR EXCLUDED BY INSTRUCTIONS, PRECAUTIONS, OR WARNING CONTAINED IN MITSUBISHI'S USER, INSTRUCTION AND/OR SAFETY MANUALS, TECHNICAL BULLETINS AND GUIDELINES FOR the PRODUCT.

("Prohibited Application")

Prohibited Applications include, but not limited to, the use of the PRODUCT in;

- Nuclear Power Plants and any other power plants operated by Power companies, and/or any other cases in which the public could be affected if any problem or fault occurs in the PRODUCT.

- Railway companies or Public service purposes, and/or any other cases in which establishment of a special quality assurance system is required by the Purchaser or End User.

- Aircraft or Aerospace, Medical applications, Train equipment, transport equipment such as Elevator and Escalator, Incineration and Fuel devices, Vehicles, Manned transportation, Equipment for Recreation and Amusement, and Safety devices, handling of Nuclear or Hazardous Materials or Chemicals, Mining and Drilling, and/or other applications where there is a significant risk of injury to the public or property.

Notwithstanding the above, restrictions Mitsubishi may in its sole discretion, authorize use of the PRODUCT in one or more of the Prohibited Applications, provided that the usage of the PRODUCT is limited only for the specific applications agreed to by Mitsubishi and provided further that no special quality assurance or fail-safe, redundant or other safety features which exceed the general specifications of the PRODUCTs are required. For details, please contact the Mitsubishi representative in your region.

INTRODUCTION

Thank you for your patronage. We appreciate your purchase of the Mitsubishi integrated FA software, MELSOFT series.

This manual is designed for users to understand operations of GX LogViewer.

Before using the product, please read this manual carefully and develop familiarity with the functions and performance of GX LogViewer and supported modules to handle the products correctly.

CONTENTS

CONTENTS

7

RELEVANT MANUAL

Manual name [manual number]	Description	Available form
GX LogViewer Version 1 Operating Manual [SH-080915ENG] (this manual)	Explains the system configuration, functions, and operating methods of GX LogViewer.	Print book e-Manual EPUB PDF

Point

e-Manual refers to the Mitsubishi FA electronic book manuals that can be browsed using a dedicated tool.

e-Manual has the following features:

- Required information can be cross-searched in multiple manuals.
- Other manuals can be accessed from the links in the manual.
- The hardware specifications of each part can be found from the product figures.
- Pages that users often browse can be bookmarked.

TERMS

Unless otherwise specified, this manual uses the following terms.

Term	Description
Analog module	A generic term for MELSEC iQ-R series analog module, MELSEC-Q series analog module, and MELSEC-L series analog module
ATA card	An abbreviation for AT Attachment card A generic term for Q2MEM-8MBA, Q2MEM-16MBA, and Q2MEM-32MBA This memory card is required for the logging function of MELSEC-Q series analog module.
Binary file	A file which is in non-text format and can be interpreted correctly only with the dedicated tools such as GX LogViewer
BOX Data Logger	A generic term for NZ2DL BOX Data Logger
CompactFlash card	A storage card regulated by the "CF+ and CompactFlash Specification" issued by the CompactFlash Association This memory card is required for operating High Speed Data Logger Module and BOX Data Logger.
Configuration tool	A generic term for CPU Module Logging Configuration Tool, High Speed Data Logger Module Configuration Tool, BOX Data Logger Configuration Tool, and High Speed Data Communication Module Configuration Tool
CPU module	A generic term for RCPU, QnUDVCPU, and LCPU
CPU Module Logging Configuration Tool	A tool to configure the respective settings required for the logging function or operation of RCPU, QnUDVCPU, and LCPU
CSV file	An abbreviation for Comma Separated Values, which is a text file that consists of comma-delimited data
CSV file in GX LogViewer format	A generic term for data saved with Energy Measuring Unit, sampling trace data, a simulation result saved with FLEXIBLE HIGH-SPEED I/O CONTROL Module Configuration tool.
Data communication	Another term for High Speed Data Communication Module
Data logger	A generic term for High Speed Data Logger Module and BOX Data Logger
Data logging file	A file in which data sampled by a module is saved in the specified format
Energy Measuring Unit	An abbreviation for Logging Unit for Energy Measuring Unit (EcoMonitorLight) (EMU4-LM)
Event logging file	A file in which events sampled by High Speed Data Logger Module or BOX Data Logger are saved in the specified format
FLEXIBLE HIGH-SPEED I/O CONTROL Module Configuration tool	A Configuration tool for MELSEC-L series Flexible High Speed I/O Control Module (LD40PD01).
GX LogViewer	A generic product name for SWnDNN-VIEWER ("n" indicates version.)
GX Works2	A generic product name for SWnDNC-GXW2-E ("n" indicates version.)
High Speed Data Communication Module	An abbreviation for MELSEC-Q series High Speed Data Communication Module (QJ71DC96)
High Speed Data Logger Module	An abbreviation for MELSEC-Q series High Speed Data Logger Module (QD81DL96)
Index	A sequential number which is assigned to logging data/monitoring data individually
LCPU	A generic term for L02CPU, L02CPU-P, L06CPU, L06CPU-P, L26CPU, L26CPU-P, L26CPU-BT, and L26CPU-PBT
Logging file	A generic term for Data logging file and Event logging file
MELSEC iQ-R series analog module	A generic term for MELSEC iQ-R series analog module (R60AD4, R60ADV8, R60ADI8, R60AD8-G, R60AD16-G, R60RD8-G, and R60TD8-G)
MELSEC-L series analog module	A generic term for MELSEC-L series Analog-Digital Converter Module (L60AD4, and L60AD4-2GH) and MELSEC-L series Analog Input/Output Module (L60AD2DA2)
MELSEC-Q series analog module	A generic term for MELSEC-Q series High Speed Analog-Digital Converter Module (Q64ADH) and MELSEC-Q series Current Transformer Input Module (Q68CT)
Memory card	A generic term for SD memory card, CompactFlash card, and ATA card
Module	A generic term for connectable modules with GX LogViewer (RCPU, QnUDVCPU, LCPU, High Speed Data Logger Module, BOX Data Logger, High Speed Data Communication Module, MELSEC iQ-R series analog module, MELSEC-Q series analog module, MELSEC-L series analog module).
OpenGL	An application programming interface (API) for 2D/3D graphics applications.
Personal computer	A generic term for personal computer on which Windows® operates
Plot	Each single point of data sampled by a module when displayed on a trend graph
QCPU	A generic term for Q00JCPU, Q00UJCPU, Q00CPU, Q00UCPU, Q01CPU, Q01UCPU, Q02CPU, Q02HCPU, Q02PHCPU, Q02UCPU, Q03UDCPU, Q03UDECPU, Q03UDVCPU, Q04UDHCPU, Q04UDEHCPU, Q04UDVCPU, Q04UDPVCPU, Q06HCPU, Q06PHCPU, Q06UDHCPU, Q06UDEHCPU, Q06UDVCPU, Q06UDPVCPU, Q10UDHCPU, Q10UDEHCPU, Q12HCPU, Q12PHCPU, Q12PRHCPU, Q13UDHCPU, Q13UDEHCPU, Q13UDVCPU, Q13UDPVCPU, Q20UDHCPU, Q20UDEHCPU, Q25HCPU, Q25PHCPU, Q25PRHCPU, Q26UDHCPU, Q26UDEHCPU, Q26UDVCPU, Q26UDPVCPU, Q50UDEHCPU, and Q100UDEHCPU
QnUDVCPU	A generic term for Q03UDVCPU, Q04UDVCPU, Q06UDVCPU, Q13UDVCPU and Q26UDVCPU

Term	Description
RCPU	A generic term for R04CPU, R04ENCPU, R08CPU, R08PCPU, R08SFCPU, R08ENCPU, R16CPU, R16PCPU, R16SFCPU, R16ENCPU, R32CPU, R32PCPU, R32SFCPU, R32ENCPU, R120CPU, R120PCPU, R120SFCPU, and R120ENCPU
RnENCPU	A generic term for R04ENCPU, R08ENCPU, R16ENCPU, R32ENCPU, and R120ENCPU
RnPCPU	A generic term for R08PCPU, R16PCPU, R32PCPU, and R120PCPU
RnSFCPU	A generic term for R08SFCPU, R16SFCPU, R32SFCPU, and R120SFCPU
SD memory card	An abbreviation for Secure Digital Memory Card, which is a memory device configured by flash memory A memory card required for the logging function of RCPU, QnUDVCPU, LCPU, MELSEC iQ-R series analog module, Q series analog module, L series analog module, and Energy Measuring Unit
Unicode text file	A text file which consists of tab-delimited data
URL	An abbreviation for Uniform Resource Locator A method to describe the location of information resources including documents and images on the Internet
Windows Vista®	A generic term for Microsoft® Windows Vista® Ultimate Operating System (English), Microsoft® Windows Vista® Home Premium Operating System (English), Microsoft® Windows Vista® Home Basic Operating System (English), Microsoft® Windows Vista® Business Operating System (English), and Microsoft® Windows Vista® Enterprise Operating System (English)
Windows Vista® or later	A generic term for Windows Vista®, Windows® 7, Windows® 8, and Windows® 8.1
Windows® 7	A generic term for Microsoft® Windows® 7 Starter Operating System (English), Microsoft® Windows® 7 Home Premium Operating System (English), Microsoft® Windows® 7 Professional Operating System (English), Microsoft® Windows® 7 Ultimate Operating System (English), and Microsoft® Windows® 7 Enterprise Operating System (English)
Windows® 7 or later	A generic term for Windows® 7, Windows® 8, and Windows® 8.1
Windows® 8	A generic term for Microsoft® Windows® 8 Operating System (English), Microsoft® Windows® 8 Pro Operating System (English), and Microsoft® Windows® 8 Enterprise Operating System (English)
Windows® 8.1	A generic term for Microsoft® Windows® 8.1 Operating System (English), Microsoft® Windows® 8.1 Pro Operating System (English), and Microsoft® Windows® 8.1 Enterprise Operating System (English)
Windows® XP	A generic term for Microsoft® Windows® XP Professional Operating System (English), and Microsoft® Windows® XP Home Edition Operating System (English)

Definitions of icon

RCPU   R Analog   QnUDVCPU   High Speed Data Logger   High Speed Data Communication   Q Analog   LCPU   L Analog   BOX Data Logger   Others

The above icons indicate the target modules and data for operating explanation in this manual.

Icon	Target modules and data for operating explanation
RCPU	RCPU
R Analog	MELSEC iQ-R series analog module
QnUDVCPU	QnUDVCPU
High Speed Data Logger	High Speed Data Logger Module
High Speed Data Communication	High Speed Data Communication Module
Q Analog	MELSEC-Q series analog module
LCPU	LCPU
L Analog	MELSEC-L series analog module
BOX Data Logger	BOX Data Logger
Others	CSV file in GX LogViewer format • Data saved with Energy Measuring Unit • Sampling trace data • Simulation result saved with FLEXIBLE HIGH-SPEED I/O CONTROL Module Configuration tool.

1 OVERVIEW

RCPU | R Analog | QnUDVCPU | High Speed Data Logger | High Speed Data Communication | Q Analog | LCPU | L Analog | BOX Data Logger | Others

1.1 Overview of GX LogViewer

GX LogViewer is a tool to display and analyze large-volume data sampled by various modules which feature the logging function with the simple and easy-to-understand operation.

Display the logging results with graphs and lists

Display events

Display data

Logging files, sampling trace data saved to a personal computer, or simulation result

- RCPU
- MELSEC iQ-R series analog module

- QnUDVCPU
- MELSEC-Q series analog module

- LCPU
- MELSEC-L series analog module

- High Speed Data Logger Module
- High Speed Data Communication Module

- BOX Data Logger

The connection destination setting can be performed with the same operation as the Configuration tool and the Engineering tool, and check the logging file easily.

1.2 Features

This section explains features of GX LogViewer.

Displaying sampled data and events visually

Data check is performed efficiently since data and events sampled and saved with the module or GX Works2 are displayed visually.

Trend graph display   Event monitor display
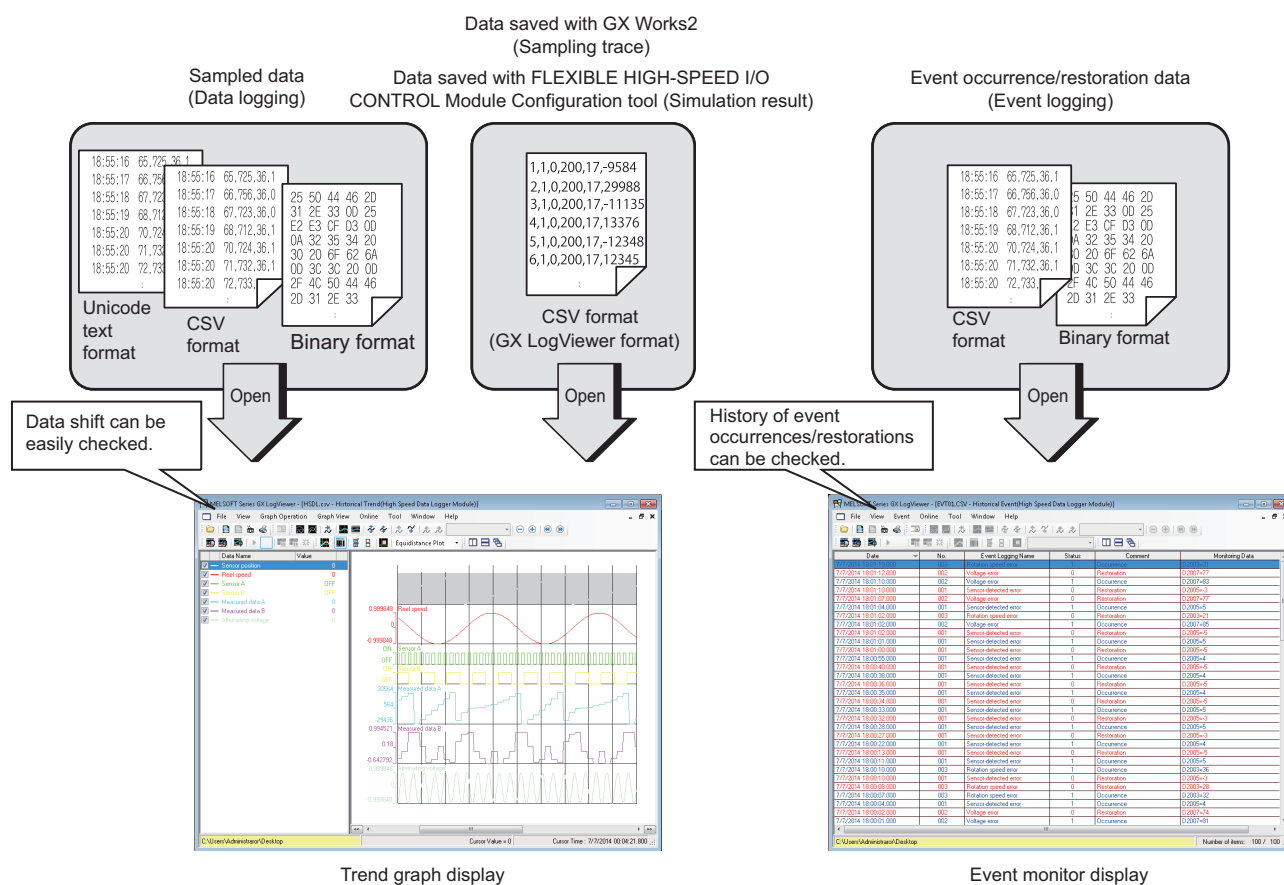
Easy graph adjustment with the automatic adjustment function and drag operation

Graphs are easily adjusted without manuals by using the automatic adjustment function and the drag operation.

Data can be checked instantly since graphs are adjusted intuitively and smoothly by only using a mouse.

■Graph arrangement and superimpose

Click a button

Click a button

Multiple data can be compared by superimposing graphs.

Graphs are easily viewable by arranging them at equal spaces.
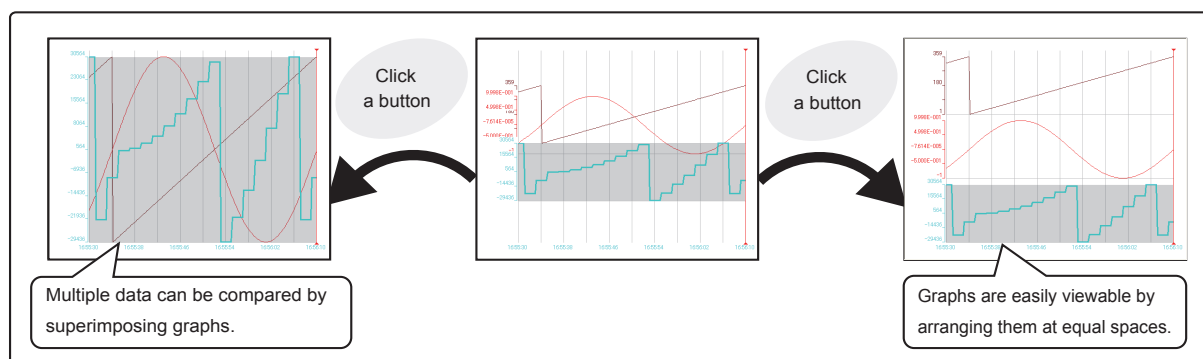
☞ Page 79 Aligning graphs

☞ Page 79 Superimposing graphs

■Automatic graph adjustment

Click a button

Display size is automatically adjusted according to the maximum/minimum value of data.
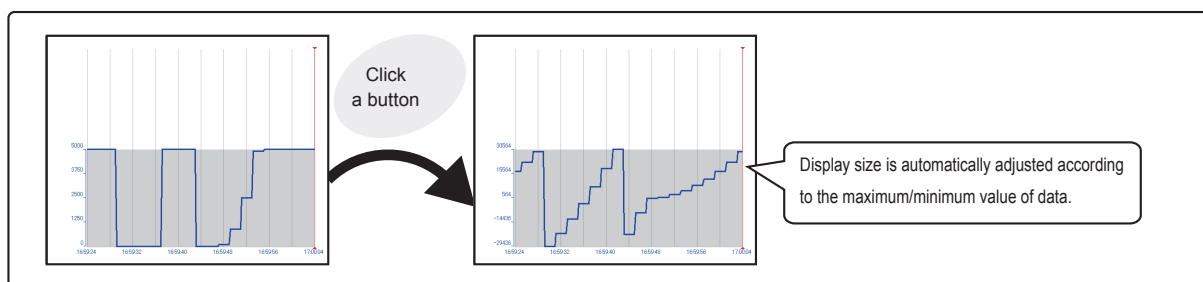
☞ Page 84 Specifying upper/lower limit display value

■Display size adjustment

Drag with a mouse

Enlarge the error location.
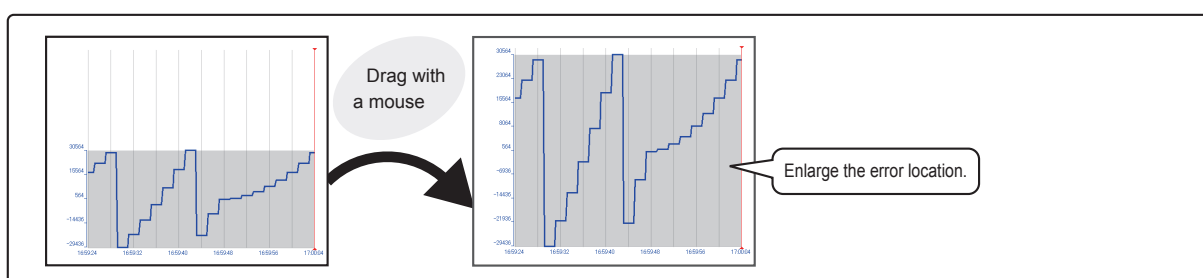
☞ Page 87 Widening/narrowing the display scale

■Moving graph

Drag with a mouse

Position graphs freely.
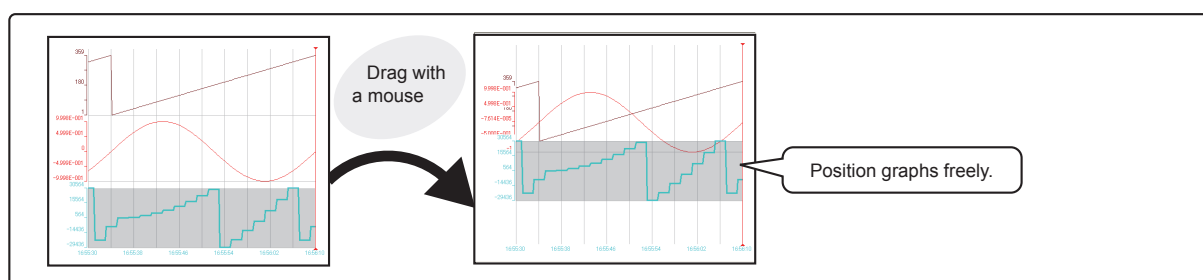
☞ Page 87 Moving graph up/down/left/right

Instant check for data changes with easy-to-understand operation

Data changes are instantly checked by using the two cursors (multiple cursor function).

Cursor B (blue)　　　Cursor A (red)

Reel Speed

Measured ValueA

Measured ValueB

AC Voltage

SensorB

SensorA

Data shift can be viewed at a glance.

The shift in value and time between the cursors can be instantly checked.

Difference(Blue->Red)	-10464	Span(Blue->Red)	00:00:17.800
Value(Blue)	18564	Time(Blue)	7/3/2014 05:29:08.000
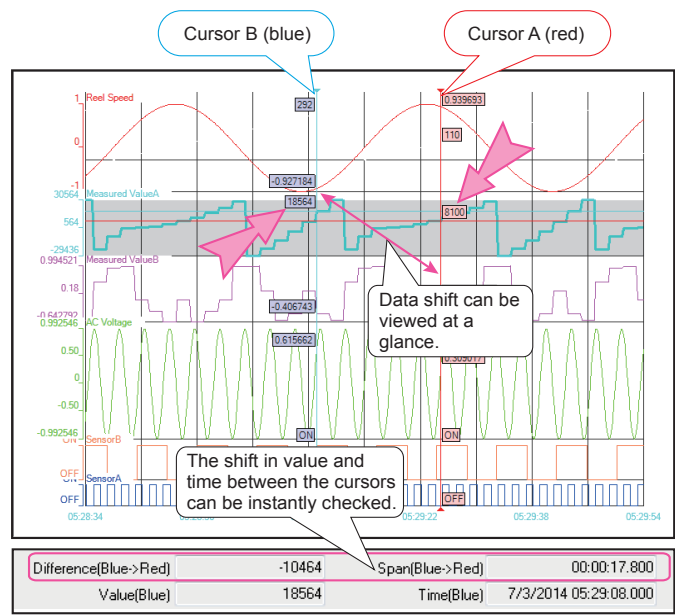
Instant check for the target data

Data values are instantly checked by using the Jump cursor function to jump a cursor to the specified value/time/index position on the trend graph.

Jump to the position where the condition is satisfied.

[Value search]
Condition search
Value ≧ 400

[Time specification]　　[Index specification]
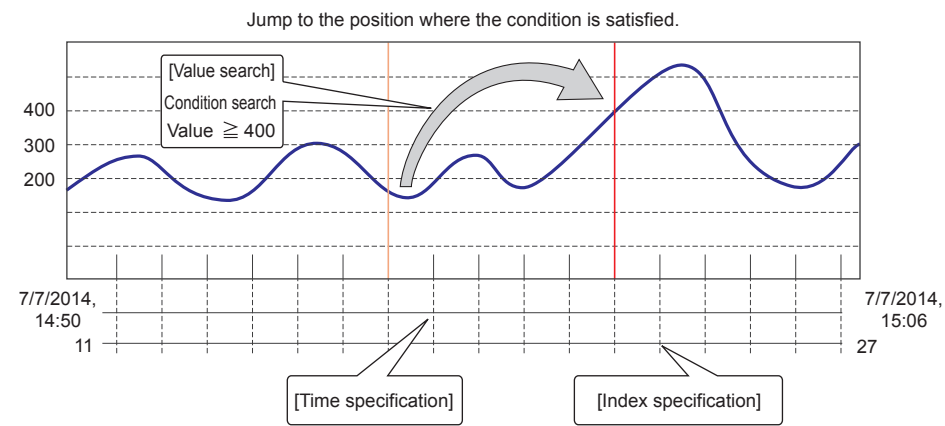
Easy confirmation of logging data differences among multiple files

By displaying logging data stored in the multiple files on the same graph area, the difference of each data can be confirmed with the same time interval.

Furthermore, superimposing the graphs with simple operation enables the easier data comparison among multiple files.
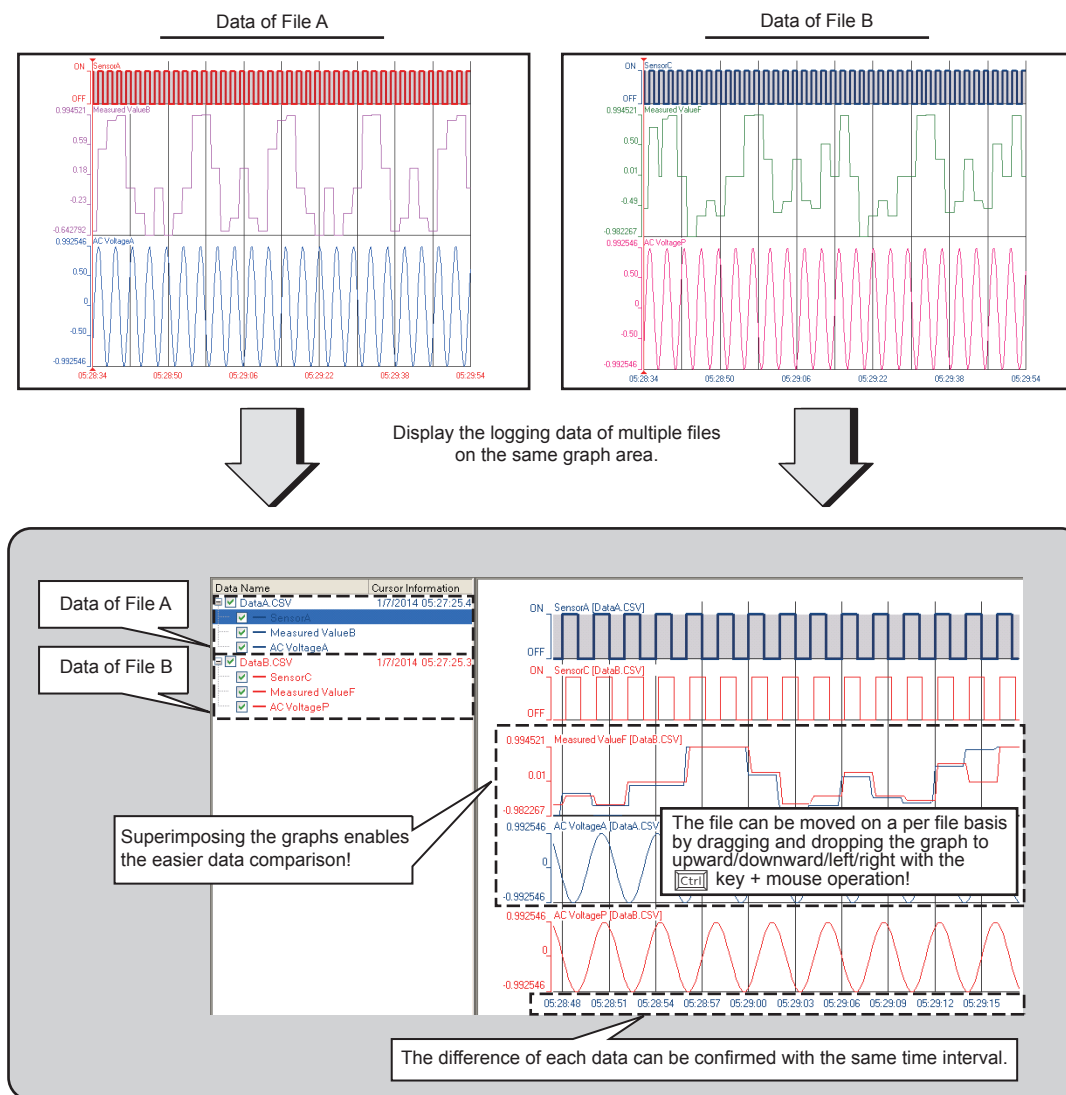
Data of File A

Data of File B

Display the logging data of multiple files on the same graph area.

Data of File A

Data of File B

Superimposing the graphs enables the easier data comparison!

The file can be moved on a per file basis by dragging and dropping the graph to upward/downward/left/right with the Ctrl key + mouse operation!

The difference of each data can be confirmed with the same time interval.

2 SYSTEM CONFIGURATION

This chapter explains the operating environment and the system configuration of GX LogViewer.

2.1 Operating Environment

For details of the GX LogViewer operating environment, refer to the installation instructions stored in the "Manual" folder.
📖 CPU Module Logging Configuration Tool/GX LogViewer Installation Instructions (BCN-P5999-0506)

2.2 System Configuration

| RCPU | R Analog | QnUDVCPU | High Speed Data Logger | High Speed Data Communication | Q Analog | LCPU | L Analog | BOX Data Logger | Others ✕ |

This section explains the system configuration to display data logged by respective modules on GX LogViewer.

Item	Reference
System configuration	Page 16 Displaying data logged by RCPU on GX LogViewer
	Page 18 Displaying data logged by QnUDVCPU/LCPU on GX LogViewer
	Page 19 Displaying data logged by Analog module on GX LogViewer
	Page 22 Displaying data logged by Data logger/Data communication on GX LogViewer

Displaying data logged by RCPU on GX LogViewer

| RCPU | R Analog ✕ | QnUDVCPU ✕ | High Speed Data Logger ✕ | High Speed Data Communication ✕ | Q Analog ✕ | LCPU ✕ | L Analog ✕ | BOX Data Logger ✕ | Others ✕ |

The system configuration to display data logged by RCPU on GX LogViewer is shown below.

The connectable route is the same as the connection with CPU Module Logging Configuration Tool.

SD memory card (Required, Sold separately)

RCPU

Obtain the data from RCPU, and display it.

USB/Ethernet

• Connection from USB
• Connection from Ethernet port

GX LogViewer

Display personal computer
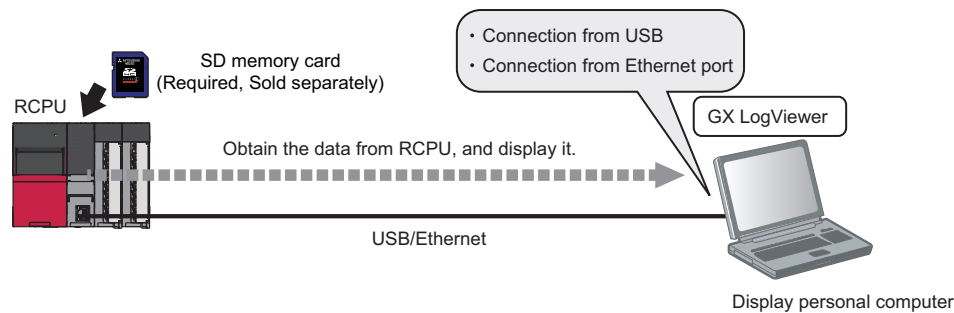
RCPU and a personal computer can be connected with the following communication route.

Item	Reference
Type of communication route	Page 17 Connection from USB port
	Page 17 Connection from Ethernet port

Point

For details on the considerations when connecting to RCPU using a USB or an Ethernet, refer to the following section.

☞ Page 24 Considerations for connection

Connection from USB port
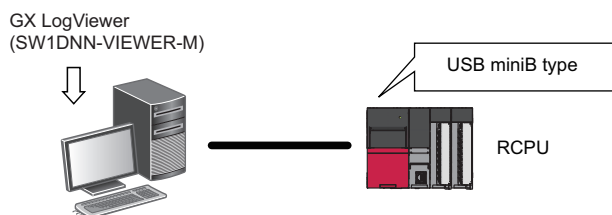
■Connection using USB cable

Use the following USB cables:

• USB cable (USB A type — USB miniB type)

• USB cable (USB B type — USB miniB type)

> **Point**
>
> Install the USB driver when using a USB cable for the first time.
>
> ☞ Page 154 USB Driver Installation

Connection from Ethernet port
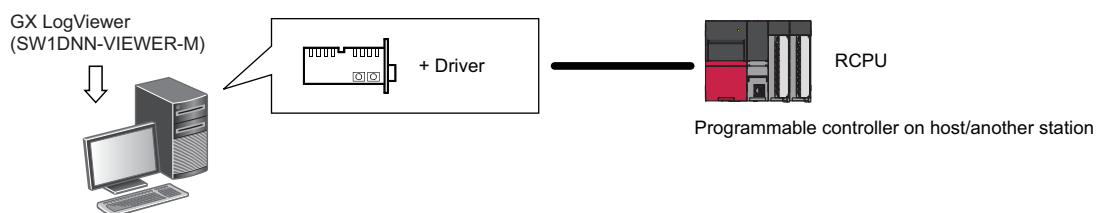
Use an Ethernet board that is built-in to a personal computer or commercially available.

■For connection via hub

RCPU and a personal computer are connected through a local network via a hub[1].

The IP address of RCPU is required to be specified when connecting via a hub.

■For direct connection

RCPU and a configuration/display personal computer are directly connected on a 1:1 basis through an Ethernet cable without a hub[1].

The IP address of RCPU does not need to be specified for communication when directly connecting.

[1] For RnENCPU, use the Ethernet port of CPU part to connect to a personal computer. Note that connecting from Ethernet ports of network part is not supported.

Displaying data logged by QnUDVCPU/LCPU on GX LogViewer

RCPU ✕　R Analog ✕　**QnUDVCPU**　High Speed Data Logger ✕　High Speed Data Communication ✕　Q Analog ✕　**LCPU**　L Analog ✕　BOX Data Logger ✕　Others ✕

The system configuration to display data logged by QnUDVCPU/LCPU on GX LogViewer is shown below.

The connectable route is the same as the connection with CPU Module Logging Configuration Tool.

Ex.

The system configuration to display data logged by LCPU on GX LogViewer
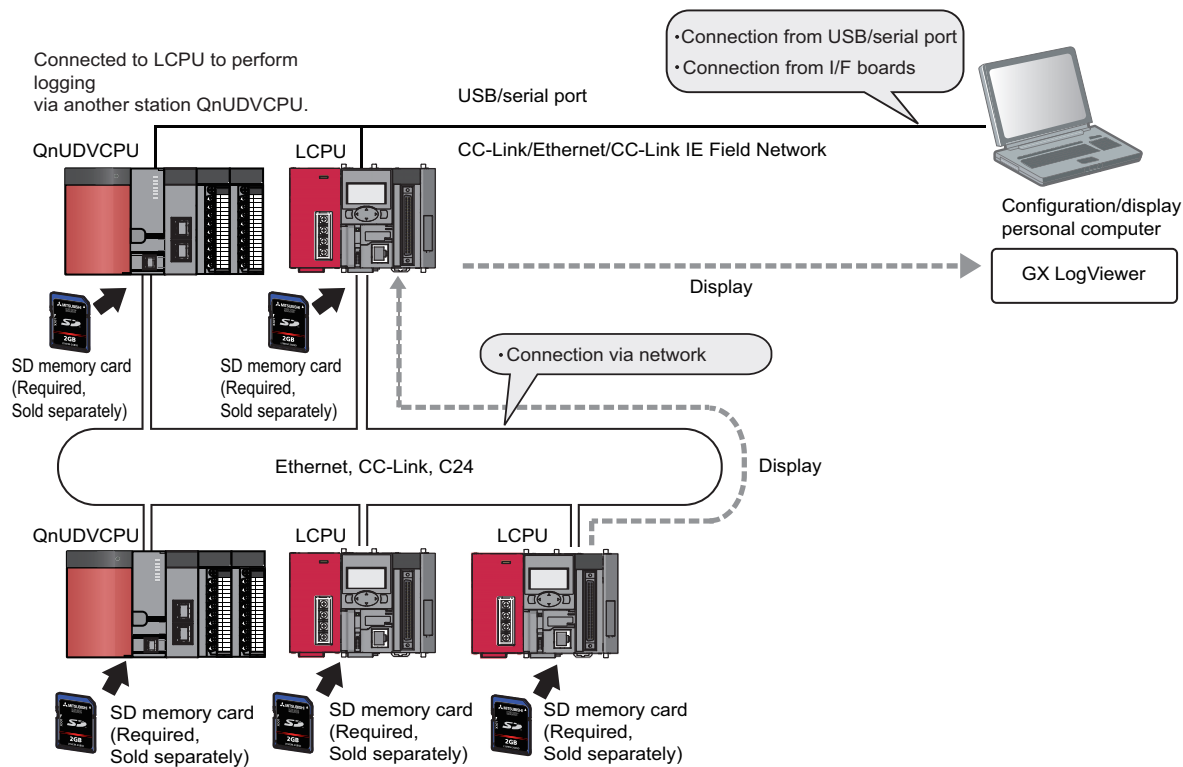
QnUDVCPU/LCPU and a personal computer can be connected with the following communication route.

Item	Reference
Type of communication route	Page 20 Connection from USB/serial port(Connection via network)
	Page 21 Connection from I/F boards

Point

For details on the considerations when connecting to QnUDVCPU/LCPU using a USB or an Ethernet, refer to the following section.

☞ Page 24 Considerations for connection

Displaying data logged by Analog module on GX LogViewer

Data logged by Analog module is saved in a memory card inserted in RCPU/QCPU/LCPU module. Therefore, connect a personal computer to each target RCPU/QCPU/LCPU module in order to display the sampled data on GX LogViewer.

Point

For details on the methods of saving data from Analog module to a memory card, refer to the user's manual of each analog module.

Ex.

The system configuration to display data logged by MELSEC iQ-R series analog module on GX LogViewer

SD memory card
(Required, Sold separately)

・Connection from USB
・Connection from Ethernet port

GX LogViewer

RCPU

Obtain the data from RCPU, and display it.

USB/Ethernet

MELSEC iQ-R series analog module

Display personal computer
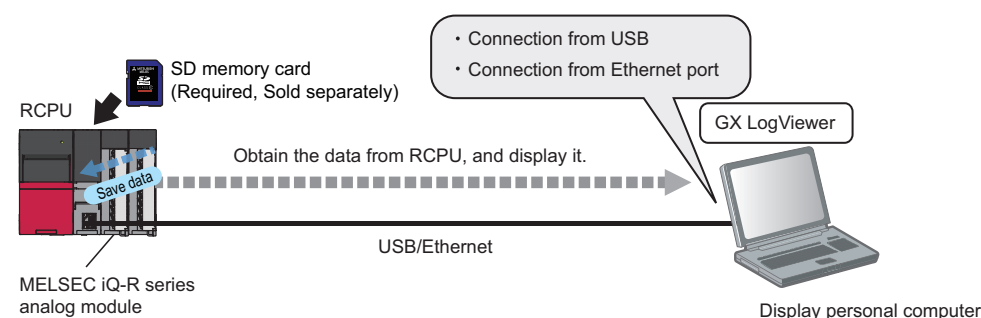
Communication route for MELSEC iQ-R series analog module is the same as that for RCPU.

☞ Page 16 Displaying data logged by RCPU on GX LogViewer

Ex.

The system configuration to display data logged by MELSEC-Q/L series analog module on GX LogViewer

ATA card
(Required, Sold separately)

SD memory card
(QnUDVCPU)(Required, Sold separately)

・Connection from USB/serial port
・Connection from I/F boards

GX LogViewer

QCPU

Obtain the data from QCPU, and display it.

USB/serial port/CC-Link IE Controller Network/
MELSECNET/H(10)/CC-Link/Ethernet/
CC-Link IE Field Network

MELSEC-Q series analog module

Display personal computer

SD memory card
(Required, Sold separately)

LCPU

Obtain the data from LCPU, and display it.

USB/serial port/CC-Link/Ethernet/
CC-Link IE Field Network

MELSEC-L series analog module

Restriction

For L60AD4, the logging function is supported only by modules with a serial number whose first five digits are '13041' or higher.

Connection from USB/serial port

The system configuration connectable from the USB/serial port of a personal computer is shown below.
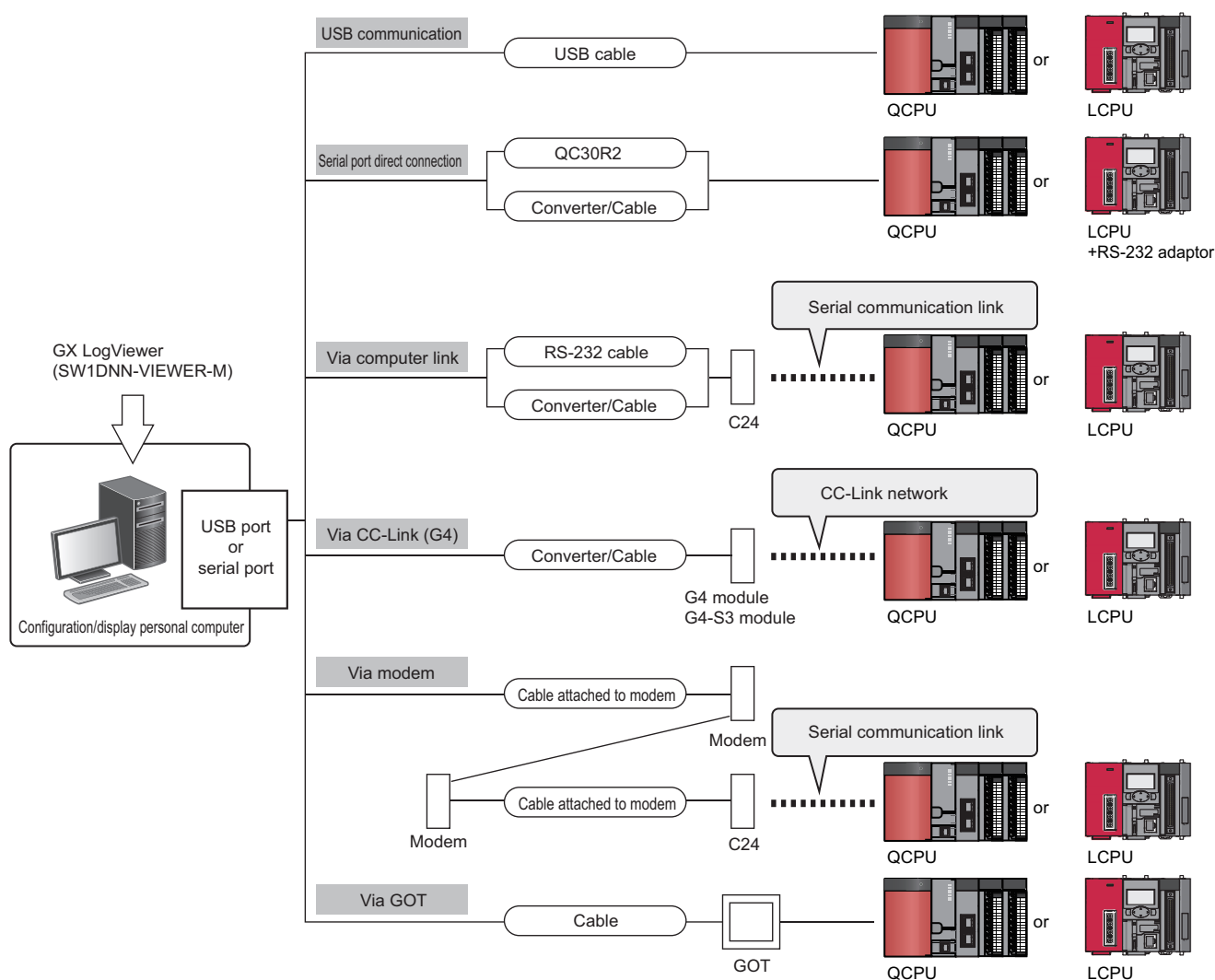
■Connection using USB cable

Use the following USB cables:

- USB cable (USB A type ― USB miniB type)
- USB cable (USB B type ― USB miniB type)

Point

- Install the USB driver when using a USB cable for the first time.
  ☞ Page 154 USB Driver Installation
- For the methods of checking the COM port number when connecting a personal computer to QCPU/LCPU
  by using a cable such as USB/RS-232 conversion cable, refer to the manual for each cable.

■Connection using RS-232 cable

The following table shows the RS-232 cable whose operation have been confirmed by Mitsubishi Electric.

Model name	
QC30R2 (Personal computer connector: 9-pin D-sub connector)	Mitsubishi Electric Corporation RS-232 cable

Precautions

- For high-speed communication (transmission speed: 115.2/57.6kbps), use a personal computer supporting high-speed communication.
- When a communication error occurs, retry the communication after reducing the transmission speed setting.

■Connection via GOT

Using the transparent function of GOT enables the access to QCPU/LCPU via GOT.

For details, refer to the following manuals:

📖 Connection Manual of GOT2000 Series

Connection from I/F boards

The system configuration to connect QCPU/LCPU using an I/F board mounted on a personal computer is shown below.
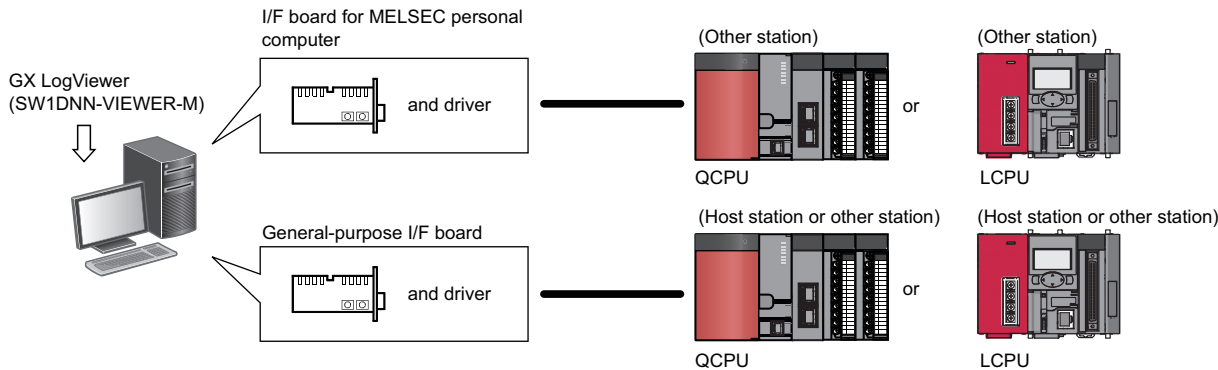
I/F board name	
I/F board for MELSEC personal computer	MELSECNET/H board
	CC-Link IE Controller Network board
	CC-Link IE Field Network board
	CC-Link Ver.1 board
	CC-Link Ver.2 board
General-purpose I/F board	Ethernet board

For more details on connectable QCPUs/LCPUs, I/F board models, and drivers, refer to the manual of each I/F board.

Restriction

- The TCP connection is recommended for the Ethernet connection.
- Longer time is required for processes to open or save a logging file to the personal computer when using the Ethernet direct connection or the UDP connection.

Displaying data logged by Data logger/Data communication on GX LogViewer

~~RCPU~~ ~~R Analog~~ ~~QnUDVCPU~~ **High Speed Data Logger** **High Speed Data Communication** ~~Q Analog~~ ~~LCPU~~ L Analog **BOX Data Logger** ~~Others~~

The system configuration to display data logged by Data logger/Data communication on GX LogViewer is shown below.

Connect a personal computer to respective Data logger or Data communication in order to display data logged by those on GX LogViewer.

The connectable route is the same as the connection with Configuration tool of Data logger/Data communication.

Point

BOX Data Logger has three ports: serial port, Ethernet port (CH1), and Ethernet port (CH2).

For details on CPU modules, configuration/display personal computers, and respective servers connectable to each port, refer to the following manual.

📖 BOX Data Logger User's Manual
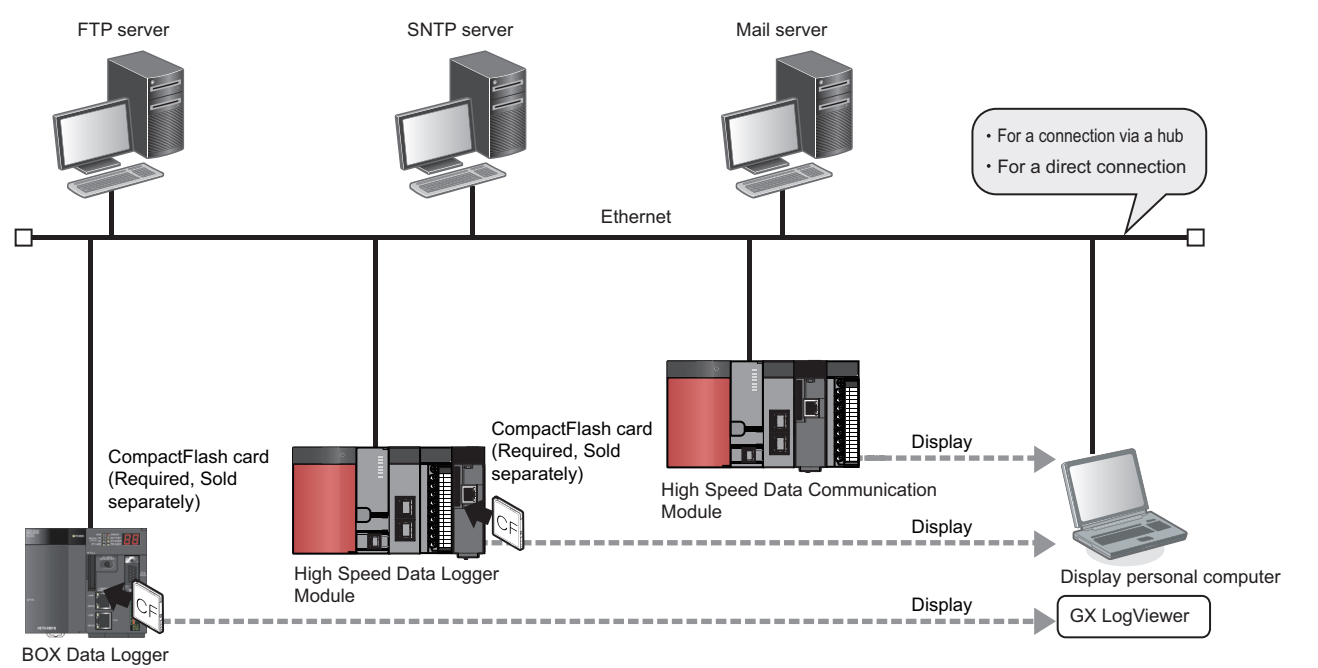
Data logger/Data communication and an Ethernet port of a personal computer can be connected with the following communication route.

Item	Reference
Type of communication route	Page 23 For connection via hub
	Page 23 For direct connection

Ethernet (twisted pair) cables (sold separately) that conform to the standard of IEEE802.3, 10BASE-T/100BASE-TX can be used.

For details on Ethernet communication specifications, refer to the user's manual of Data logger/Data communication.

Point

For details on the considerations when connecting to Data logger/Data communication using a USB or an Ethernet, refer to the following section.

☞ Page 24 Considerations for connection

Connection from Ethernet port

■For connection via hub

Data logger/Data communication and a personal computer are connected through a local network via a hub.

When connecting via a hub, the IP address of Data logger/Data communication is required to be specified.

Ex.
Connecting via a hub using High Speed Data Logger Module
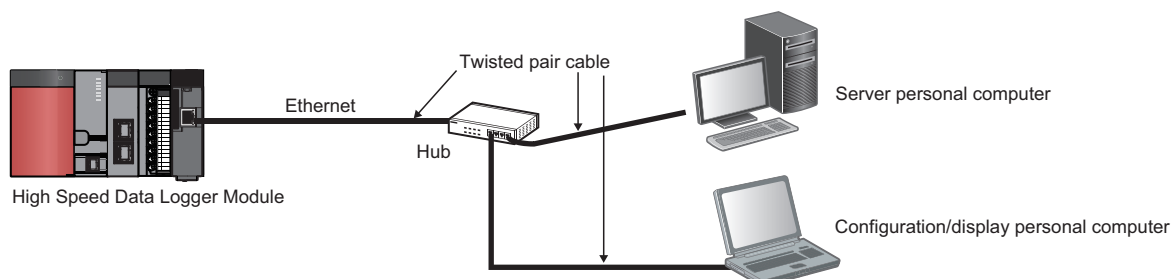
■For direct connection

Data logger/Data communication and a configuration/display personal computer are directly connected on a 1:1 basis through an Ethernet cable (crossing cable) without a hub.

The IP address of Data logger/Data communication does not need to be specified for communication when directly connecting. (The broadcast is used for communication.)

Point

A straight cable can be used for BOX Data Logger.

Considerations for connection

The following are considerations for connecting to a module using a USB or an Ethernet.

Considerations for USB connection

Pay attention to the following when connecting a personal computer and a module using a USB.

■Connecting more than one modules to a single personal computer

Only one module can be connected at a time.

Connection in the configurations below cannot be performed.

<Inapplicable configuration>

- Connection to several programmable controller CPUs from the personal computer with several USB ports

USB cable

USB cable

RCPU   or QCPU   or LCPU

RCPU   or QCPU   or LCPU

- Connection to several programmable controller CPUs via USB hub

USB cable

USB hub

USB cable

USB cable

RCPU   or QCPU   or LCPU

RCPU   or QCPU   or LCPU
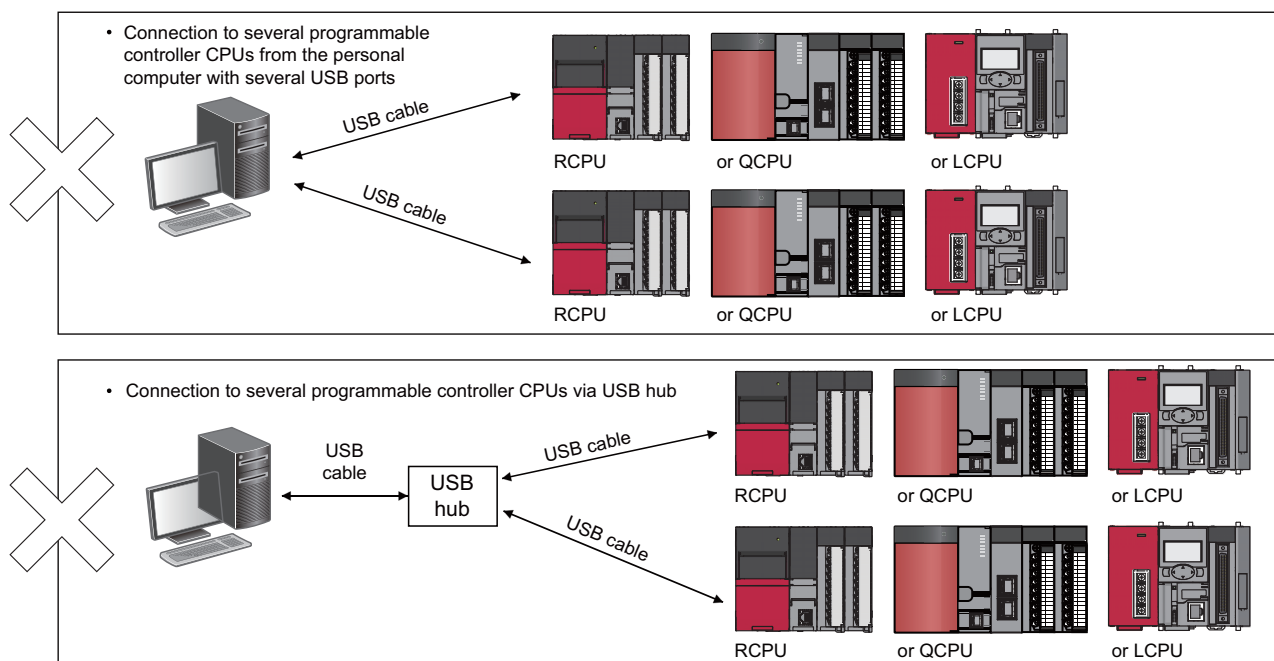
Considerations for Ethernet connection

Pay attention to the following when connecting a personal computer and a module using Ethernet.

■For connection via hub

- Set the network settings on a personal computer so that its network address is the same as the one of a module to be connected.

Ex.

For High Speed Data Logger Module

Set the same values

Set the different values.

Network portion	Host portion		Network portion	Host portion
192.168. 3.	3		192.168. 3.	1
255.255.255.	0		255.255.255.	0

Factory setting
IP address :
  192.168.3.3
Subnet mask :
  255.255.255.0

Ethernet

Hub

High Speed Data Logger Module

Configuration/display personal computer
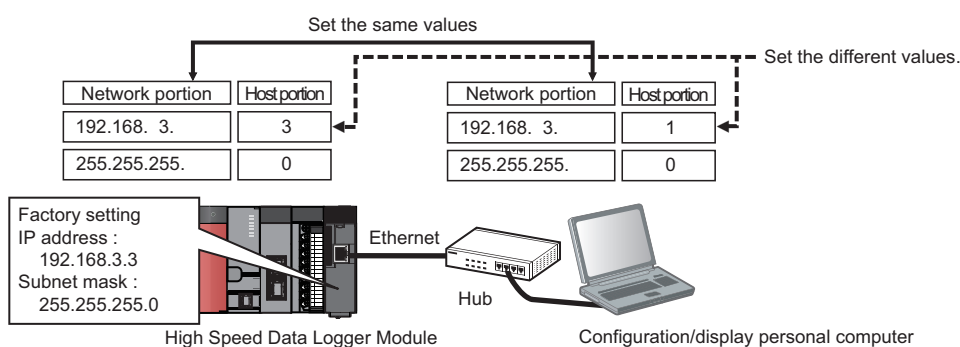
- Data logger/Data communication can be connected only using LAN. Connection via the Internet cannot be performed.

■For direct connection

• Connections which are not direct connection

Direct connection setup cannot be performed in a configuration where a single Data logger/Data communication and a single personal computer are connected to a hub as shown in the following figure.

Ex.
For High Speed Data Logger Module

High Speed Data Logger Module   Configuration/display personal computer

Ethernet
Hub
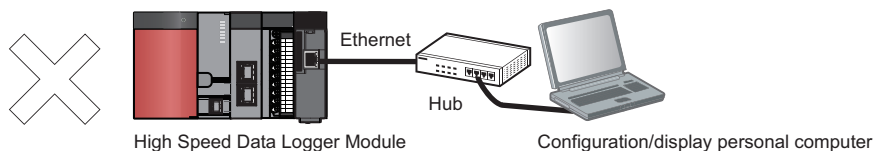
• Conditions where communication cannot be accomplished with direct connection

If the conditions below match, communications may not be performed with direct connection. If communications cannot be performed, review the module and personal computer settings.

Ex.
When all the bits of the module-side IP address corresponding to the '0' parts of the personal computer-side subnetmask are ON or OFF

• Module IP address: 64. 64. 255. 255
• Personal computer IP address: 64. 64. 1. 1
• Personal computer subnet mask: 255. 255. 0. 0

Ex.
When all the bits of the module-side IP address corresponding to the host address of each class for the personal computer-side IP address are ON or OFF

• Module IP address: 64. 64. 255. 255
• Personal computer IP address: 192. 168. 0. 1
• Personal computer subnet mask: 255. 255. 0. 0

■IP addresses of each class are as follows:
• ClassA: 0. x. x. x to 127. x. x. x
• ClassB: 128. x. x. x to 191. x. x. x
• ClassC: 192. x. x. x to 223. x. x. x

■Host addresses of each class are the '0' parts below.
• ClassA: 255. 0. 0. 0
• ClassB: 255. 255. 0. 0
• ClassC: 255. 255. 255. 0

Ex.
When the Module-side IP address is automatically acquired from DHCP

• LAN line and connection

Do not perform communication with direct connection by connecting LAN line. Communication with direct connection overloads the line, and affects any communication of other devices.

• Direct connection to BOX Data Logger

Connect the Ethernet cable to the Ethernet port (CH1) when connecting BOX Data Logger and a configuration/display personal computer directly. Ethernet port (CH2) cannot be used to connect directly.

Connected to Ethernet port (CH1)
Ethernet
Twisted pair cable (crossing cable/straight cable)

BOX Data Logger   Configuration/display personal computer
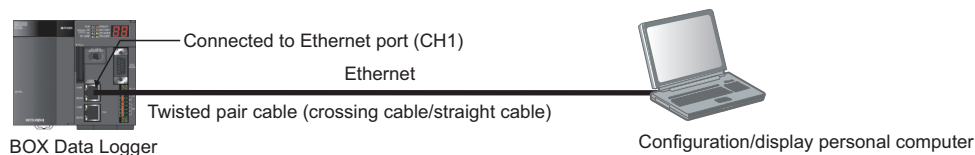
■When the Windows® firewall setting is enabled

Disable the Windows® firewall setting.

■When multiple IP addresses are enabled

Direct connection setup cannot be performed in a configuration where multiple IP addresses are enabled at the same time as shown below.

- An IP address is assigned to each of multiple Ethernet ports (network devices) of a personal computer
- Aside from the Ethernet port of a personal computer, a wireless LAN setting is enabled
- Multiple IP addresses are assigned to one Ethernet port of a personal computer

Considerations for realtime monitor connection

Pay attention to the following when connecting a personal computer and a module.

■For connection including Ethernet in the communication route

The UDP connection is not available, except for the direct connection. Use the TCP connection.

3 FUNCTION LIST

This chapter explains the major functions of GX LogViewer and the modules supporting those.

Function list for CPU module

RCPU | R Analog | QnUDVCPU | ✕ High Speed Data Logger | ✕ High Speed Data Communication | Q Analog | LCPU | L Analog | ✕ BOX Data Logger | ✕ Others

Item		Description	Reference
Assistant function		A function to guide users unfamiliar with the operation of GX LogViewer.	Page 35 Assistant Screen
Connection setup function	Direct connection	Connects a personal computer to CPU module on a 1:1 basis. They can be easily connected without concerning the IP address (available only for Ethernet connection and USB connection).	Page 46 Connecting to RCPU Page 47 Connecting to QCPU/LCPU
	Searching modules	Searches for and connects to Built-in Ethernet port QnUDVCPU/LCPU on the network (available only for Ethernet connection).	Page 49 Searching and specifying a Built-in Ethernet port CPU module on the network
Trend graph function	Displaying trend graph (Historical trend graph)	Displays past data sampled by the data logging function on the trend graph. • For RCPU, data saved in Unicode text files or binary files is displayed. • For QnUDVCPU/LCPU, data saved in CSV files is displayed.	Page 60 Displaying logged devices (Historical trend graph)
	Displaying trend graph (Realtime monitor graph)	Displays current data sampled by RCPU/LCPU on the trend graph.	Page 62 Displaying current device status (Realtime monitor graph)
	Checking data	Checks data using cursors.	Page 73 Checking Data
	Operating trend graph	Operates a trend graph (such as aligning, widening/narrowing, and moving the graph).	Page 76 Operating Trend Graphs
	Changing display item in graph area	Changes display items in a graph area (such as multiple cursors and cursor labels).	Page 94 Changing Display Items in Graph Area
	Changing graph appearance	Changes graph appearance (such as color and type of the graph, and graph line thickness).	Page 98 Changing Graph Appearance
	Registering/reflecting graphical display settings	Registers the display setting information of the trend graph being displayed, and reflects it to another trend graph.	Page 101 Registering and Reflecting Graphical Display Settings of Trend Windows
	Reflecting graphical display automatically	Stores the graphical display information being displayed by each data logging setting, and reflects them to the graph automatically when opening the trend window next time.	Page 103 Reflecting Graph Display Automatically When Opening File
	Initializing graphical display	Restores changed graphical display to the initial state (the state in which graph appearance such as the color has not been changed).	Page 103 Initializing Graph Display
Logging file save function		A function to save logging files saved in a memory card to a personal computer.	Page 123 SAVING LOGGING FILES TO PERSONAL COMPUTER
Window/ folder restore function	Adding/restoring frequently-used window configurations	Adds window layout and data of the trend window displayed frequently to the menu in order to restore them easily.	Page 126 Adding/Restoring Frequently-Used Window Configuration to Menu
	Redisplaying recently-used windows/folders	Adds windows or folders recently used to the menu automatically in order to redisplay those easily.	Page 127 Redisplaying Recently-Used Windows Page 127 Redisplaying Recently-Used Folders
Displayed data save function		A function to save the data being displayed in the trend graph to a personal computer as Unicode text file, CSV file, or image file (BMP/JPG/PNG).	Page 128 Saving Displayed Data
Trend graph print function		A function to print the trend graph being displayed with the trend graph function.	Page 148 PRINTING TREND GRAPHS

Function list for Data logger

	RCPU	R Analog	QnUDVCPU	High Speed Data Logger	High Speed Data Communication	Q Analog	LCPU	L Analog	BOX Data Logger	Others

Item		Description	Reference
Assistant function		A function to guide users unfamiliar with the operation of GX LogViewer.	Page 35 Assistant Screen
Connection setup function	Direct connection	Connects a personal computer to Data logger on a 1:1 basis. They can be easily connected without concerning the IP address.	Page 50 Connecting to Data logger/Data communication
	Searching modules	Searches for and connects to Data logger on the network.	
Trend graph function	Displaying trend graph (Historical trend graph)	Displays past data sampled by the data logging function on the trend graph. Data saved in CSV files/binary files is displayed.	Page 60 Displaying logged devices (Historical trend graph)
	Displaying trend graph (Realtime trend graph)	Displays current data sampled by Data logger on the trend graph.	Page 61 Displaying current device status (Realtime trend graph)
	Checking data	Checks data using cursors.	Page 73 Checking Data
	Operating trend graph	Operates a trend graph (such as aligning, widening/narrowing, and moving the graph).	Page 76 Operating Trend Graphs
	Changing display item in graph area	Changes display items in a graph area (such as multiple cursors and cursor labels).	Page 94 Changing Display Items in Graph Area
	Changing graph appearance	Changes graph appearance (such as color and type of the graph, and graph line thickness).	Page 98 Changing Graph Appearance
	Registering/reflecting graphical display settings	Registers the display setting information of the trend graph being displayed, and reflects it to another trend graph.	Page 101 Registering and Reflecting Graphical Display Settings of Trend Windows
	Reflecting graphical display automatically	Stores the graphical display information being displayed by each label group setting, and reflects them to the graph automatically when open the trend window next time.	Page 103 Reflecting Graph Display Automatically When Opening File
	Initializing graphical display	Restores changed graphical display to the initial state (the state in which graph appearance such as the color has not been changed).	Page 103 Initializing Graph Display
Event monitoring function	Displaying event list (Historical event list)	Displays past events sampled by the event logging function in an event list. Event saved in CSV files/binary files is displayed.	Page 112 Displaying Event List
	Displaying event list (Realtime event list)	Displays ongoing events sampled by the event logging function in an event list.	
	Operating event list	Operates an event list (such as sorting and filtering).	Page 114 Operating Event List
	Changing display settings of event list	Customizes the display settings of event list (such as font color and display items).	Page 121 Changing Display Settings of Event List
Logging file save function		A function to save logging files saved in the memory card to a personal computer.	Page 123 SAVING LOGGING FILES TO PERSONAL COMPUTER
Window/ folder restore function	Adding/restoring frequently-used window configurations	Adds window layout and data of the trend window displayed frequently to the menu in order to restore them easily.	Page 126 Adding/Restoring Frequently-Used Window Configuration to Menu
	Redisplaying recently-used windows/folders	Adds windows or folders recently used to the menu automatically in order to redisplay those easily.	Page 127 Redisplaying Recently-Used Windows Page 127 Redisplaying Recently-Used Folders
Displayed data/event save function		A function to save the data being displayed in the trend graph and the events displayed in the event list to a personal computer as CSV file or image file (BMP/JPG/PNG).	Page 128 Saving Displayed Data Page 145 Saving Displayed Events
Trend graph print function		A function to print the trend graph being displayed with the trend graph function.	Page 148 PRINTING TREND GRAPHS

Function list for Data communication

RCPU ✕ R Analog ✕ QnUDVCPU ✕ High Speed Data Logger ✕ **High Speed Data Communication** Q Analog ✕ LCPU ✕ L Analog ✕ BOX Data Logger ✕ Others ✕

Item		Description	Reference
Assistant function		A function to guide users unfamiliar with the operation of GX LogViewer.	Page 35 Assistant Screen
Connection setup function	Direct connection	Connects a personal computer to Data communication on a 1:1 basis. They can be easily connected without concerning the IP address.	Page 50 Connecting to Data logger/Data communication
	Searching modules	Searches for and connects to Data communication on the network.	
Trend graph function	Displaying trend graph (Historical trend graph)	Displays saved past data on the trend graph. Only CSV files in which realtime trend data has been saved are displayed.	Page 60 Displaying logged devices (Historical trend graph)
	Displaying trend graph (Realtime trend graph)	Displays current data sampled by Data communication on the trend graph.	Page 61 Displaying current device status (Realtime trend graph)
	Checking data	Checks data using cursors.	Page 73 Checking Data
	Operating trend graph	Operates a trend graph (such as aligning, widening/narrowing, and moving the graph).	Page 76 Operating Trend Graphs
	Changing display item in graph area	Changes display items in a graph area (such as multiple cursors and cursor labels).	Page 94 Changing Display Items in Graph Area
	Changing graph appearance	Changes graph appearance (such as color and type of the graph, and graph line thickness).	Page 98 Changing Graph Appearance
	Registering/reflecting graphical display settings	Registers the display setting information of the trend graph being displayed, and reflects it to another trend graph.	Page 101 Registering and Reflecting Graphical Display Settings of Trend Windows
	Reflecting graphical display automatically	Stores the graphical display information being displayed by each label group setting, and reflects them to the graph automatically when open the trend window next time.	Page 103 Reflecting Graph Display Automatically When Opening File
	Initializing graphical display	Restores changed graphical display to the initial state (the state in which graph appearance such as the color has not been changed).	Page 103 Initializing Graph Display
Window/ folder restore function	Adding/restoring frequently-used window configurations	Adds window layout and data of the trend window displayed frequently to the menu in order to restore them easily.	Page 126 Adding/Restoring Frequently-Used Window Configuration to Menu
	Redisplaying recently-used windows/folders	Adds windows or folders recently used to the menu automatically in order to redisplay those easily.	Page 127 Redisplaying Recently-Used Windows Page 127 Redisplaying Recently-Used Folders
Displayed data save function		A function to save the data being displayed in the trend graph to a personal computer as CSV file or image file (BMP/JPG/PNG).	Page 128 Saving Displayed Data
Trend graph print function		A function to print the trend graph being displayed with the trend graph function.	Page 148 PRINTING TREND GRAPHS

3

Function list for CSV file in GX LogViewer format

RCPU ✕ R Analog ✕ QnUDVCPU ✕ High Speed Data Logger ✕ High Speed Data Communication ✕ Q Analog ✕ LCPU ✕ L Analog ✕ BOX Data Logger ✕ Others

Item		Description	Reference
Trend graph function	Displaying trend graph (Historical trend graph)	Displays saved past data on the trend graph.	Page 60 Displaying logged devices (Historical trend graph)
	Checking data	Checks data using cursors.	Page 73 Checking Data
	Operating trend graph	Operates a trend graph (such as aligning, widening/narrowing, and moving the graph).	Page 76 Operating Trend Graphs
	Changing display item in graph area	Changes display items in a graph area (such as multiple cursors and cursor labels).	Page 94 Changing Display Items in Graph Area
	Changing graph appearance	Changes graph appearance (such as color and type of the graph, and graph line thickness).	Page 98 Changing Graph Appearance
	Registering/reflecting graphical display settings	Registers the display setting information of the trend graph being displayed, and reflects it to another trend graph.	Page 101 Registering and Reflecting Graphical Display Settings of Trend Windows
	Reflecting graphical display automatically	Stores the graphical display information being displayed by each label group setting, and reflects them to the graph automatically when open the trend window next time.	Page 103 Reflecting Graph Display Automatically When Opening File
	Initializing graphical display	Restores changed graphical display to the initial state (the state in which graph appearance such as the color has not been changed).	Page 103 Initializing Graph Display
Window/ folder restore function	Adding/restoring frequently-used window configurations	Adds window layout and data of the trend window displayed frequently to the menu in order to restore them easily.	Page 126 Adding/Restoring Frequently-Used Window Configuration to Menu
	Redisplaying recently-used windows/folders	Adds windows or folders recently used to the menu automatically in order to redisplay those easily.	Page 127 Redisplaying Recently-Used Windows Page 127 Redisplaying Recently-Used Folders
Displayed data save function		A function to save the data being displayed in the trend graph to a personal computer as CSV file or image file (BMP/JPG/PNG).	Page 128 Saving Displayed Data
Trend graph print function		A function to print the trend graph being displayed with the trend graph function.	Page 148 PRINTING TREND GRAPHS

4 OBTAINING AND STARTING GX LogViewer

4.1 Obtaining GX LogViewer

Obtaining GX LogViewer in Japan

GX LogViewer can be downloaded from Mitsubishi Electric FA site.

www.MitsubishiElectric.co.jp/fa

For downloading GX LogViewer, please register for a free membership on Mitsubishi Electric FA site in advance.

Obtaining GX LogViewer in other countries

For the information on how to obtain GX LogViewer, please consult your local Mitsubishi representative.

4.2 Installing and Uninstalling GX LogViewer

For the procedures for installing/uninstalling GX LogViewer, refer to the installation instructions stored in the "Manual" folder.
📖 CPU Module Logging Configuration Tool/GX LogViewer Installation Instructions (BCN-P5999-0506)

4.3 Starting and Exiting GX LogViewer

This section explains how to start and exit GX LogViewer.

Starting GX LogViewer

Operating procedure

Select [MELSOFT] ⇨ [Logging Function] ⇨ [GX LogViewer] from Windows® Start[*1].

*1 Start GX LogViewer from [All apps] on the Start screen or [Start] ⇨ [All Programs].

Exiting GX LogViewer

Operating procedure

Select [File] ⇨ [Exit].

4.4 Switching the Display Language

Since GX LogViewer supports multiple languages, switching the display language such as on a menu bar is available on the one personal computer.

Operating procedure

[View] ⇨ [Switch Display Language]

Precautions

- If the selected language and the language of operating system are different, characters on the display may be cut off.
- The display language may not be switched in some parts of display items (such as "Host" or "Other station" for a connection destination). In addition, window names may not be displayed in the selected language.

MEMO

5 SCREEN CONFIGURATION

5.1 Main Window

The following figure shows the main window configuration of GX LogViewer.
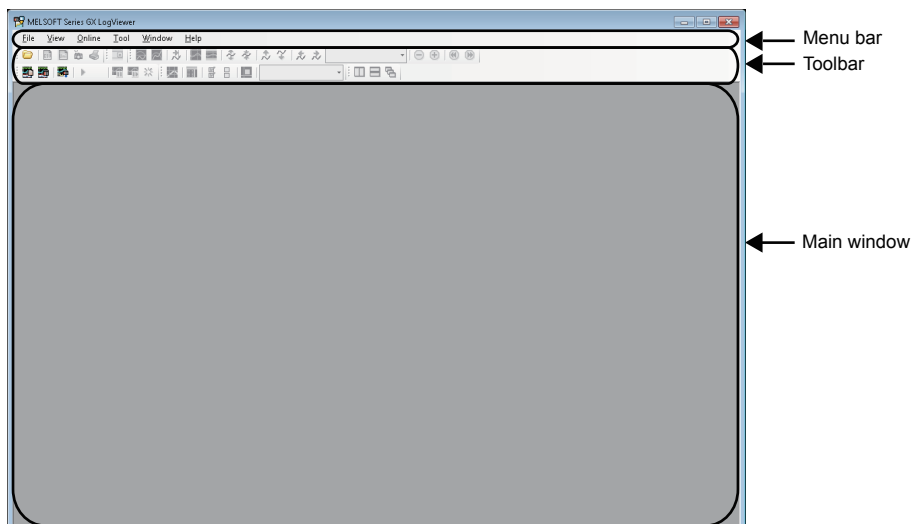
Only one main window can be displayed on the desktop since multiple GX LogViewer cannot be activated.

5.2   Child Windows

Child windows (trend windows/event windows) are displayed in the main window.

Multiple child windows can be displayed by each logging file and each logging data.

Event window
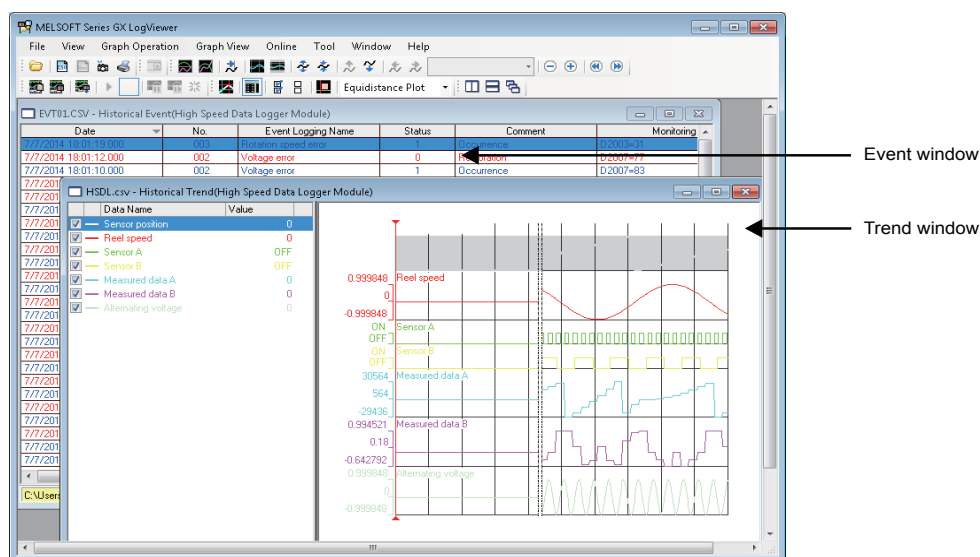
Trend window

Name of window	Function	Reference
Trend window	Trend graph function	Page 55 Trend window
Event window	Event monitoring function	Page 109 Event window

Restriction

● The number of realtime monitor window that can be displayed simultaneously with multiple RCPUs/LCPUs is only one window.

● The number of realtime trend window and/or realtime event window that can be displayed simultaneously with a single Data logger or a single BOX Data logger is up to two windows.

● The number of realtime trend window and/or realtime event window that can be displayed simultaneously with a single Data communication is shown below.

 • For high speed sampling: up to two screens

 • For general sampling: up to four screens (When two screens are used for high speed sampling, the number of screen can be displayed for general sampling is up to two screens.)

● The maximum number of GX Logviewer accessible to a single module at the same time varies by module.

Operating procedure

■Tiling windows vertically/horizontally, or cascading windows

Select [Window] ⇨ [Tile Vertically] (▢)/ [Tile Horizontally] (▤)/ [Cascade] (▤).

<Tile vertically>   <Tile horizontally>   <Cascade>
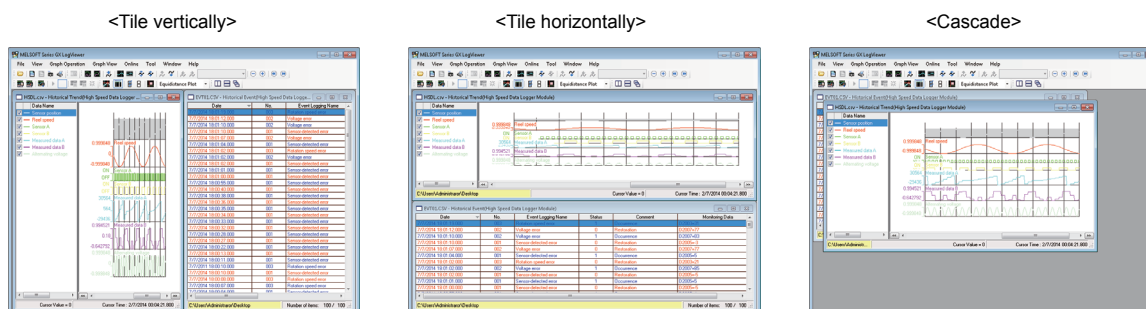
■Bringing hidden window to front

Select a file name or data logging setting/event logging setting to bring the selected child window to the front.

 • Select [Window] ⇨ [(window name)].

5.3 Assistant Screen

Assistant screen is a screen to guide users unfamiliar with the operation of GX LogViewer.

By selecting the assistant menu, the major functions from graph display of logged device to save the graph can be used easily.
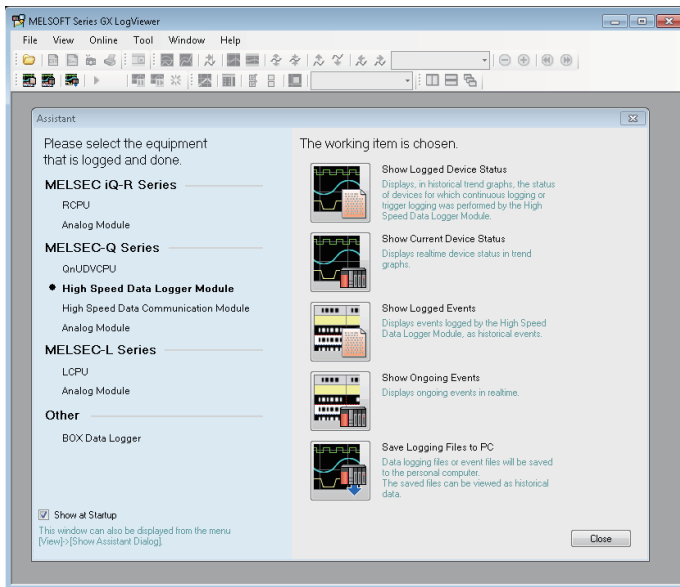
To redisplay the screen has been closed once, select [View] ⇨ [Show Assistant Dialog].

5.4 Menu Configuration

The following tables show the menu configuration of GX LogViewer.

[File]	Reference
⇨ [Open]	Page 61 Displaying logging file saved in personal computer
⇨ [Recent Folders] ⇨ [(folder name)]	Page 127 Redisplaying Recently-Used Folders
⇨ [Close]	—
⇨ [Save As] ⇨ [Save CSV File]	Page 128 SAVING DISPLAYED DATA/EVENTS
⇨ [Save As] ⇨ [Save Unicode Text File]	
⇨ [Save As] ⇨ [Save Image File]	
⇨ [Print]	Page 148 PRINTING TREND GRAPHS
⇨ [Import and Export]	Page 101 Registering and Reflecting Graphical Display Settings of Trend Windows Page 126 Adding/Restoring Frequently-Used Window Configuration to Menu
⇨ [Exit]	—

[View]	Reference
⇨ [Toolbar] ⇨ [Standard]	—
⇨ [Toolbar] ⇨ [Online]	
⇨ [Toolbar] ⇨ [Graph Operation]	
⇨ [Toolbar] ⇨ [Graph View]	
⇨ [Toolbar] ⇨ [Event]	
⇨ [Toolbar] ⇨ [Window]	
⇨ [Show Assistant Dialog]	Page 35 Assistant Screen
⇨ [Switch Display Language]	Page 31 Switching the Display Language

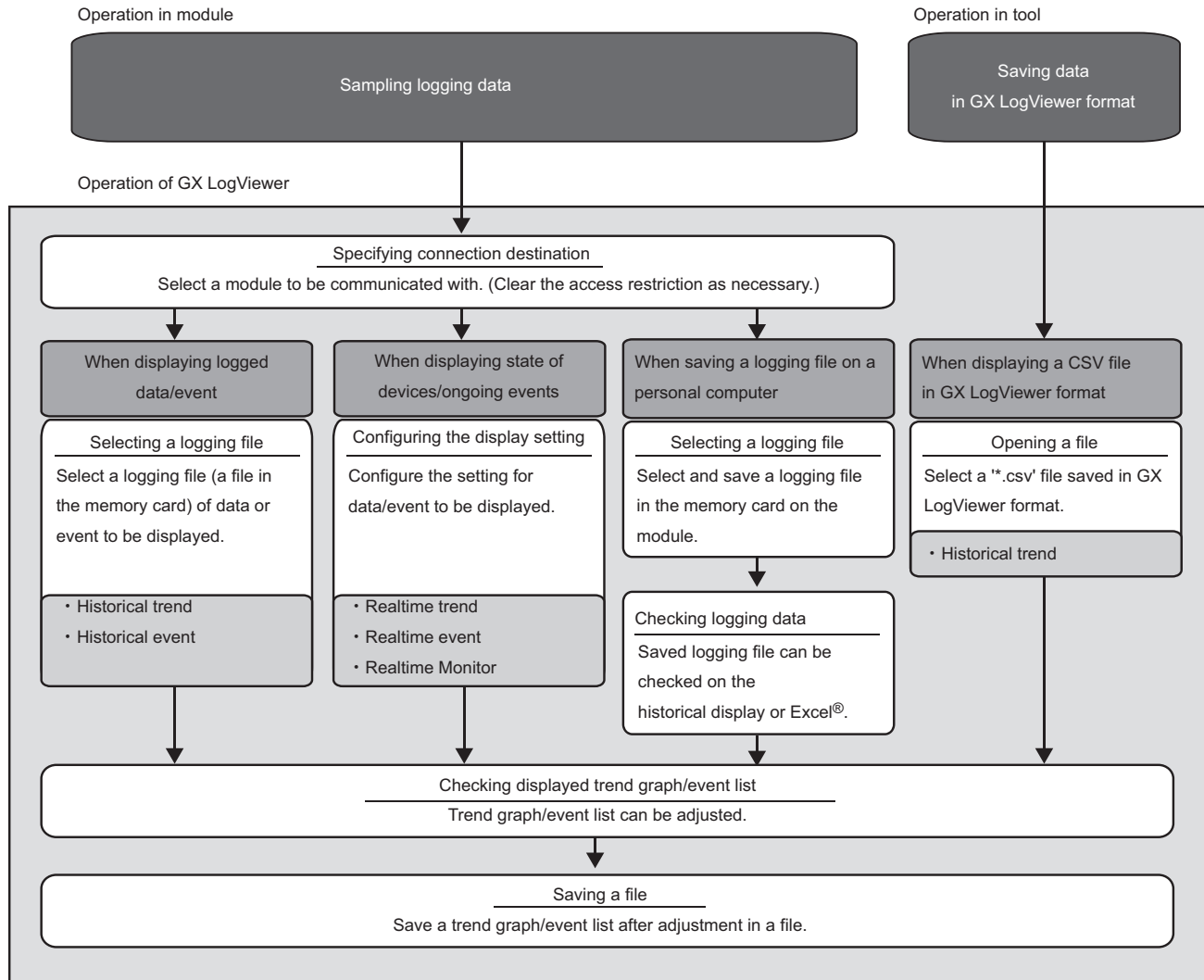| [Graph Operation]	Reference
⇨ [Graph Alignment]	Page 79 Aligning graphs
⇨ [Graph Superimpose]	Page 79 Superimposing graphs
⇨ [Jump Cursor]	Page 80 Moving cursor by specifying value/time/index
⇨ [Auto Adjust Upper/Lower Bound] ⇨ [For Period on Display]	Page 84 Specifying upper/lower limit display value
⇨ [Auto Adjust Upper/Lower Bound] ⇨ [For All Period]	
⇨ [Edit Upper/Lower Bound]	
⇨ [Edit Upper/Lower Bound in Batch]	
⇨ [Adjust Scale] ⇨ [Widen Graph]	Page 87 Widening/narrowing the display scale
⇨ [Adjust Scale] ⇨ [Narrow Graph]	
⇨ [Adjust Graph Location] ⇨ [Move Up Graph]	Page 87 Moving graph up/down/left/right
⇨ [Adjust Graph Location] ⇨ [Move Down Graph]	
⇨ [Adjust Graph Location] ⇨ [Move Graph to Left]	
⇨ [Adjust Graph Location] ⇨ [Move Graph to Right]	
⇨ [Adjust Graph Location] ⇨ [Horizontal Moving Quantity]	
⇨ [Adjust Font Size of Graph Legends] ⇨ [Expansion Font Size]	Page 56 Graph legend area
⇨ [Adjust Font Size of Graph Legends] ⇨ [Reduction Font Size]	
⇨ [Adjust Time Scale] ⇨ [Expansion Time Scale]	Page 88 Expanding/reducing time scale
⇨ [Adjust Time Scale] ⇨ [Reduction Time Scale]	
⇨ [Show Previous Graph]	Page 89 Displaying consecutive previous/next trend graph
⇨ [Show Next Graph]	

[Graph View]	Reference
⇨ [Multiple Cursor]	Page 94 Displaying multiple cursor
⇨ [Cursor Label]	Page 95 Displaying cursor labels
⇨ [Graph Highlight]	Page 100 Highlighting graph
⇨ [Bold Line]	Page 100 Thickening graph line
⇨ [Data Name][*1]	Page 95 Displaying data names

[Graph View]	Reference
⇨ [Grid] ⇨ [Vertical Line]	Page 96 Displaying grid
⇨ [Grid] ⇨ [Horizontal Line]	
⇨ [Plot Format] ⇨ [Equidistance Plot]	Page 96 Switching graph plot format
⇨ [Plot Format] ⇨ [Time Interval Plot]	
⇨ [Time Label] ⇨ [Time]	Page 97 Changing display of time scale labels
⇨ [Time Label] ⇨ [Date]	
⇨ [Time Label] ⇨ [Date and Time]	
⇨ [Time Label] ⇨ [Index]	
⇨ [Set Language] ⇨ [Chinese Simplified]	Page 116 Optimizing the display language of event logging names and comments
⇨ [Set Language] ⇨ [Chinese Traditional]	
⇨ [Set Language] ⇨ [English]	
⇨ [Set Language] ⇨ [Japanese]	
⇨ [Set Language] ⇨ [Korean]	
⇨ [Set Language] ⇨ [Unicode (UTF-8)]	
⇨ [Graph Legends]	Page 56 Graph legend area
⇨ [Show All Graphs]	Page 77 Displaying/hiding graphs
⇨ [Hide All Graphs]	
⇨ [Change the Data to Draw Graphs]	Page 75 Adding/deleting data to/from graph legend area
⇨ [Register Graphical Display Settings]	Page 101 Registering and Reflecting Graphical Display Settings of Trend Windows
⇨ [Operate Graphical Display Settings]	
⇨ [Set Graph View by the Auto Reflect Function]	Page 103 Reflecting Graph Display Automatically When Opening File
⇨ [Initialize Graph View]	Page 103 Initializing Graph Display
⇨ [Graph Properties]	Page 98 Changing Graph Appearance

*1 When the realtime monitor window is activated, "Device/Label" is displayed instead of "Data Name".

[Event]	Reference
⇨ [Filter]	Page 114 Displaying only events that meet specific conditions (Filtering)
⇨ [Sort by] ⇨ [Date]	Page 115 Sorting events (Sorting)
⇨ [Sort by] ⇨ [No.]	
⇨ [Sort by] ⇨ [Event Logging Name]	
⇨ [Sort by] ⇨ [Status]	
⇨ [Sort by] ⇨ [Comment]	
⇨ [Sort by] ⇨ [Monitoring Data]	
⇨ [Set Language] ⇨ [Chinese Simplified]	Page 116 Optimizing the display language of event logging names and comments
⇨ [Set Language] ⇨ [Chinese Traditional]	
⇨ [Set Language] ⇨ [English]	
⇨ [Set Language] ⇨ [Japanese]	
⇨ [Set Language] ⇨ [Korean]	
⇨ [Set Language] ⇨ [Unicode (UTF-8)]	
⇨ [Show Previous Event]	Page 117 Displaying consecutive previous/next event
⇨ [Show Next Event]	
⇨ [Event Properties]	Page 121 Changing Display Settings of Event List

[Online]	Reference
⇨ [Open Logging File]	Page 60 Displaying logged devices (Historical trend graph) Page 112 Displaying logged events (Historical event list)
⇨ [Realtime Monitor]	Page 61 Displaying current device status (Realtime trend graph) Page 62 Displaying current device status (Realtime monitor graph) Page 113 Displaying ongoing events (Realtime event list)
⇨ [Recent Folders] ⇨ [(folder name)]	Page 127 Redisplaying Recently-Used Folders
⇨ [Save Logging File to PC]	Page 123 SAVING LOGGING FILES TO PERSONAL COMPUTER

5

[Online]	Reference
⇨ [Begin Monitor]	Page 72 Operating Realtime trend graph/Realtime monitor graph monitoring status
⇨ [End Monitor]	
⇨ [Pause Monitor]	
⇨ [Restart Monitor]	
⇨ [Clear Graph]	

[Tool]	Reference
⇨ [Start Logging Configuration Tool]	—
⇨ [Start High Speed Data Logger Module Configuration Tool]	
⇨ [Start High Speed Data Communication Module Configuration Tool]	
⇨ [Start BOX Data Logger Configuration Tool]	
⇨ [Realtime Monitor Setting]	Page 62 Realtime monitor setting (for LCPU)
	Page 66 Realtime monitor setting (for RCPU)
⇨ [Option] ⇨ [Use an OpenGL and Draw Graphs]	Page 60 Displaying Trend Graph

[Window]	Reference
⇨ [Frequently-used Window Configuration] ⇨ [Add To Frequently-used Window Configuration]	Page 126 Adding/Restoring Frequently-Used Window Configuration to Menu
⇨ [Recent Windows] ⇨ [Historical Trend]	Page 127 Redisplaying Recently-Used Windows
⇨ [Recent Windows] ⇨ [Realtime Trend]	
⇨ [Recent Windows] ⇨ [Historical Event]	
⇨ [Recent Windows] ⇨ [Realtime Event]	
⇨ [Recent Windows] ⇨ [Realtime Monitor]	
⇨ [Tile Vertically]	Page 34 Child Windows
⇨ [Tile Horizontally]	
⇨ [Cascade]	
⇨ [Close All Windows]	—
⇨ [(name of child window)]	Page 34 Child Windows

[Help]	Reference
⇨ [Open Manual]	Page 150 Opening Manual
⇨ [Connection to MITSUBISHI ELECTRIC FA Global Website]	Page 150 Connecting to MITSUBISHI ELECTRIC FA Global Website
⇨ [About GX LogViewer]	Page 150 Version Information

6 OPERATION FLOWS

This chapter explains the operation flows to display data and events sampled by module, sampling trace data saved with GX Works2, and a simulation result saved with FLEXIBLE HIGH-SPEED I/O CONTROL Module Configuration tool on GX LogViewer.

Operation in module

Operation in tool

| Sampling logging data | | Saving data in GX LogViewer format |

Operation of GX LogViewer

Specifying connection destination
Select a module to be communicated with. (Clear the access restriction as necessary.)

| When displaying logged data/event | When displaying state of devices/ongoing events | When saving a logging file on a personal computer | When displaying a CSV file in GX LogViewer format |

Selecting a logging file
Select a logging file (a file in the memory card) of data or event to be displayed.

- Historical trend
- Historical event

Configuring the display setting
Configure the setting for data/event to be displayed.

- Realtime trend
- Realtime event
- Realtime Monitor

Selecting a logging file
Select and save a logging file in the memory card on the module.

Checking logging data
Saved logging file can be checked on the historical display or Excel®.

Opening a file
Select a '*.csv' file saved in GX LogViewer format.

- Historical trend

Checking displayed trend graph/event list
Trend graph/event list can be adjusted.

Saving a file
Save a trend graph/event list after adjustment in a file.

For methods of displaying each data, refer to the following sections.

Item	Reference
Displaying data of CPU module/Analog module	Page 41 Displaying Data of CPU Module/Analog Module
Displaying data/events of Data logger	Page 42 Displaying Data/Events of Data Logger
Displaying data of Data communication	Page 43 Displaying Data of Data Communication
Displaying CSV files in GX LogViewer format	Page 43 Displaying CSV Files in GX LogViewer Format

Save target memory card type for data logged by Analog module

Data logged by Analog module is saved in a memory card inserted in a CPU module.

Therefore, select the logging file in the memory card inserted in the CPU module when displaying sampled data on GX LogViewer.

Connection target CPU modules and types of save destination memory card when using Analog module are as follows:

Analog module to be logged	Connection target CPU module	Type of save destination memory card
MELSEC-Q series analog module	QCPU (excluding QnUDVCPU)	ATA card
MELSEC iQ-R series analog module	RCPU	SD memory card
MELSEC-Q series analog module	QnUDVCPU	
MELSEC-L series analog module	LCPU	

Access restriction when connection destination is specified

When the access restriction is set to the module by remote password or access authentication, the connection target cannot be specified with GX LogViewer.

Clear the access restriction on the "Enter remote password" screen or "Access Authentication" screen.

- For details on remote password, refer to the user's manual of CPU module.
- For details on access authentication, refer to the manual of Data logger/Data communication.

6.1 Displaying Data of CPU Module/Analog Module

RCPU | R Analog | QnUDVCPU | High Speed Data Logger ✕ | High Speed Data Communication ✕ | Q Analog | LCPU | L Analog | BOX Data Logger ✕ | Others ✕

Operating procedure

■Displaying data saved in a personal computer

1. Select [File] ⇨ [Open] (📁), or drag and drop the file.

2. Select a data logging file (*.txt, *.csv, or *.bin in a personal computer) to be displayed.

☞ Page 61 Displaying logging file saved in personal computer

■Displaying data saved in CPU module

1. Select [Online] ⇨ [Open Logging File] (📂).

2. Select a data logging file (a file in a memory card inserted in the CPU module) to be displayed.

☞ Page 60 Displaying logging file saved with logging function of CPU module/Analog module

■Saving logging files to personal computer

Select [Online] ⇨ [Save Logging File to PC] (📥).

The saved logging files can be checked by displaying as the Historical trend graph or Excel®.

☞ Page 123 SAVING LOGGING FILES TO PERSONAL COMPUTER

■Displaying current device status (only when using RCPU/LCPU)

1. Select [Online] ⇨ [Realtime Monitor] (📊).

2. Configure the realtime monitor setting.

☞ Page 62 Displaying current device status (Realtime monitor graph)

6.2 Displaying Data/Events of Data Logger

RCPU ✕ | R Analog ✕ | QnUDVCPU ✕ | **High Speed Data Logger** | High Speed Data Communication ✕ | Q Analog ✕ | LCPU ✕ | L Analog ✕ | **BOX Data Logger** | Others ✕

Operating procedure

■Displaying data saved in a personal computer

1. Select [File] ⇨ [Open] (📁), or drag and drop the file.

2. Select a data logging file (*.csv or *.bin in the personal computer) to be displayed.

☞ Page 61 Displaying logging file saved in personal computer

■Displaying data saved in Data logger

Select [Online] ⇨ [Open Logging File] (📊).

☞ Page 60 Displaying logging file saved with logging function of Data logger

■Displaying events saved in a personal computer

1. Select [File] ⇨ [Open] (📁), or drag and drop the file.

2. Select an event logging file (*.csv or *.bin in the personal computer) to be displayed.

☞ Page 112 Displaying Event logging files saved in a personal computer

■Displaying events saved in Data logger

Select [Online] ⇨ [Open Logging File] (📊).

☞ Page 112 Displaying logging files saved with the event logging function of Data logger

■Displaying current device status

1. Select [Online] ⇨ [Realtime Monitor] (📊).

2. Select a data logging setting to be displayed.

☞ Page 61 Displaying current device status of Data logger on trend graph

■Displaying ongoing events

1. Select [Online] ⇨ [Realtime Monitor] (📊).

2. Select an event logging setting to be displayed.

☞ Page 113 Displaying ongoing events (Realtime event list)

■Saving logging files to a personal computer

Select [Online] ⇨ [Save Logging File to PC] (📊).

The saved logging files can be checked by displaying as the Historical trend graph or Excel®.

☞ Page 123 SAVING LOGGING FILES TO PERSONAL COMPUTER

6.3 Displaying Data of Data Communication

RCPU ✕ | R Analog ✕ | QnUDVCPU ✕ | High Speed Data Logger ✕ | **High Speed Data Communication** | Q Analog ✕ | LCPU ✕ | L Analog ✕ | BOX Data Logger ✕ | Others ✕

Operating procedure

■Displaying data (only CSV files saved in the Realtime trend window) saved in a personal computer

1. Select [File] ⇨ [Open] (📁), or drag and drop the file.

2. Select a data logging file (*.csv in a personal computer) to be displayed.

☞ Page 61 Displaying logging file saved in personal computer

■Displaying current device status

1. Select [Online] ⇨ [Realtime Monitor] (📊).

2. Select a data logging setting to be displayed.

☞ Page 61 Displaying current device status of Data communication on trend graph

6.4 Displaying CSV Files in GX LogViewer Format

RCPU ✕ | R Analog ✕ | QnUDVCPU ✕ | High Speed Data Logger ✕ | High Speed Data Communication ✕ | Q Analog ✕ | LCPU ✕ | L Analog ✕ | BOX Data Logger ✕ | **Others**

This section explains methods of displaying data saved with Energy Measuring Unit, sampling trace data saved with GX Works2 and a simulation result saved with FLEXIBLE HIGH-SPEED I/O CONTROL Module Configuration tool.

Displaying Data Saved with Energy Measuring Unit

For methods of saving logging data in CSV file format, refer to manuals of Energy Measuring Unit.

 • Acquiring manuals of Energy Measuring Unit in Japan

The Manuals of Energy Measuring Unit can be downloaded from Mitsubishi Electric FA site.

www.MitsubishiElectric.co.jp/fa

 • Acquiring manuals of Energy Measuring Unit in other countries

For the acquisition of manuals, please consult your local Mitsubishi representative.

Operating procedure

1. Select [File] ⇨ [Open] (📁), or drag and drop the file.

2. Select a data logging file (*.csv in the personal computer) to be displayed.

☞ Page 61 Displaying logging file saved in personal computer

Displaying Sampling Trace Data Saved with GX Works2

Display a sampling trace data in GX LogViewer format saved with GX Works2.

For methods of saving sampling trace data in GX LogViewer format, refer to the following manual.

📖 GX Works2 Version 1 Operating Manual (Common)

Restriction🖐

Saving sampling trace data in GX LogViewer format is supported with Japanese version of GX Works2 Version 1.90U or later, English version of GX Works2 Version 1.91V or later, and Chinese version of GX Works2 Version 1.91V or later.

Operating procedure

1. Select [File] ⇨ [Open] (📂), or drag and drop the file.

2. Select sampling trace data in GX LogViewer format (*.csv in a personal computer) to be displayed.

☞ Page 61 Displaying logging file saved in personal computer

Displaying Data Saved with FLEXIBLE HIGH-SPEED I/O CONTROL Module Configuration Tool

Display a simulation result in GX LogViewer format saved with FLEXIBLE HIGH-SPEED I/O CONTROL Module Configuration tool.

Operating procedure

1. Select [File] ⇨ [Open] (📂), or drag and drop the file.

2. Select a simulation result saved in GX LogViewer format ('*.csv' in the personal computer) to be displayed.

☞ Page 61 Displaying logging file saved in personal computer

7 CONNECTING TO MODULE

To display or obtain logging data in module, the module to be connected is required to be selected.

This chapter explains the connection methods by respective modules.
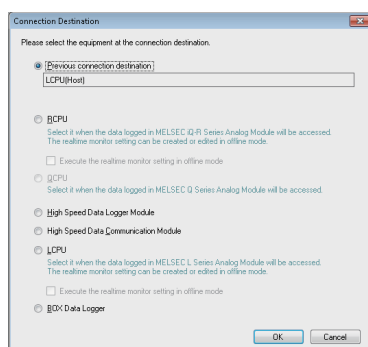
7.1 Selecting Connection Target

RCPU R Analog QnUDVCPU High Speed Data Logger High Speed Data Communication Q Analog LCPU L Analog BOX Data Logger Others

Select the equipment to be connected on the "Connection Destination" screen.

Window

Select any of the following menus.

- Select [Online] ⇨ [Open Logging File] ( ).
- Select [Online] ⇨ [Save Logging File to PC] ( ).
- Select [Online] ⇨ [Realtime Monitor] ( ).

Operating procedure

Select the equipment to be connected, and click the [OK] button.

Connection target and connection methods

For the methods of connecting to the equipment selected in the "Connection Destination" screen, refer to the following sections.

Item	Reference
• RCPU	Page 46 Connecting to RCPU
• QCPU	Page 47 Connecting to QCPU/LCPU
• High Speed Data Logger Module	Page 50 Connecting to Data logger/Data communication
• High Speed Data Communication Module	
• LCPU	Page 47 Connecting to QCPU/LCPU
• BOX Data Logger	Page 50 Connecting to Data logger/Data communication

> **Point**
>
> ●Access restriction when connection destination is specified
>
> When the access restriction is set to the module by remote password or access authentication, the connection target cannot be specified with GX LogViewer.
>
> Cancel the access restriction on the "Enter remote password" screen or "Access Authentication" screen.
> - For details on remote password, refer to the user's manual of CPU module.
> - For details on access authentication, refer to the manual of Data logger/Data communication.

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7.2 Connecting to RCPU

RCPU ~~R Analog~~ ~~QnUDVCPU~~ ~~High Speed Data Logger~~ ~~High Speed Data Communication~~ ~~Q Analog~~ ~~LCPU~~ ~~L Analog~~ ~~BOX Data Logger~~ ~~Others~~
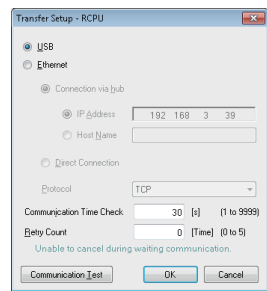
When "RCPU" is selected on the "Connection Destination" screen, the "Transfer Setup" screen is displayed.

Specify a connection route to RCPU in which the memory card saving logging files is inserted on the "Transfer Setup" screen.

Transfer Setup screen

Window

Select "RCPU" on the "Connection Destination" screen.

Method for connecting to RCPU

The methods for connecting to RCPU are shown below.

Item	Reference
Connection method	Page 46 Connecting directly using a USB cable
	Page 46 Connecting with an Ethernet cable

Connecting directly using a USB cable

Select "USB" on the "Transfer Setup" screen to connect directly.

Operating procedure

Select "USB", and click the [OK] button.

Connecting with an Ethernet cable

■Connecting directly

Select "Ethernet" on the "Transfer Setup" screen to connect directly.

Specifying IP address is not required for direct connection.

Operating procedure

After selecting "Ethernet", select "Direct Connection", and click the [OK] button.

■Connecting via a hub

Select "Ethernet" on the "Transfer Setup" screen to connect via a hub.

Specifying IP address is required for connection via a hub.

Operating procedure

1. After selecting "Ethernet", select "Connection via hub".

2. Enter IP address of RCPU to be connected, and click the [OK] button.
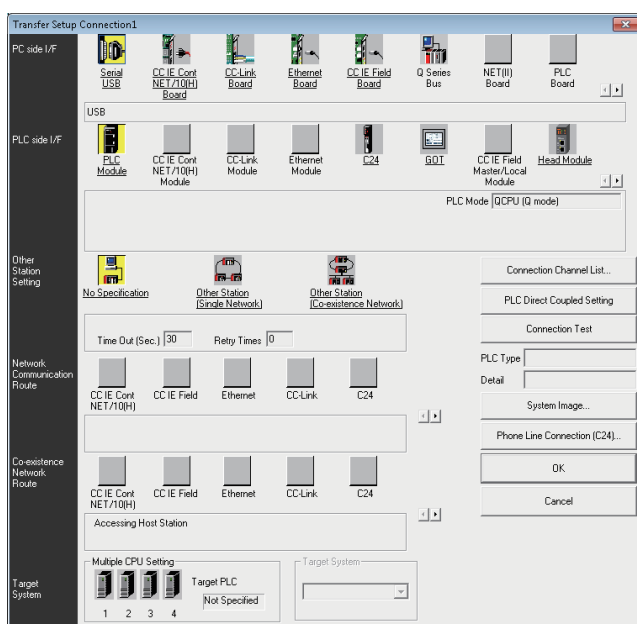
7.3 Connecting to QCPU/LCPU

When "QCPU" or "LCPU" is selected on the "Connection Destination" screen, the "Transfer Setup" screen is displayed. Specify a connection route to QCPU/RCPU in which the memory card saving logging files is inserted on the "Transfer Setup" screen.

Transfer Setup screen

Window

Select "QCPU"/"LCPU" on the "Connection Destination" screen.

On the "Transfer Setup" screen, the detailed settings for the items with underline can be configured by double-clicking it. In addition, the items with yellow icon indicate that they are already set.

Displayed items

Item		Description
Other Station Setting	No Specification	Specify this to access the QCPU/LCPU directly connected to a personal computer.
	Other Station [Single Network][*1]	Specify this to access the QCPU/LCPU on another station via only one kind of network (including a multi-tier system) such as CC-Link only, C24 module only, or Ethernet only.
	Other Station [Co-existence Network][*1]	Specify this to access the CPU module on another station via CC-Link or serial communication module from the QCPU/LCPU connected to a personal computer.
Network Communication Route		Select the network type, network number, station number, and start I/O number of the network that is routed for accessing the programmable controller CPU on another station. The setting items differ depending on the selected network type.
[Connection Channel List] button		A communication route can be selected with checking the route image displayed on the screen. Set the network number, station number, and other settings depending on the access target.

*1 When the host station is specified, select "No Specification".

Method for connecting to QCPU/LCPU

The methods for connecting to QCPU/LCPU are shown below.

Item	Reference
Connection method	Page 48 Connecting directly using a USB/Ethernet cable
	Page 48 Connecting via network

## Connecting directly using a USB/Ethernet cable

Select "USB" or "Ethernet" on the "PLC Direct Coupled Setting" screen to connect directly.

Operating procedure

1. Click the [PLC Direct Coupled Setting] button on the "Transfer Setup" screen.

2. Select "USB" or "Ethernet", and click the [Yes] button.

3. Click the [OK] button on the "Transfer Setup" screen.

Connecting via network

Configure the settings for connection via network on the "Transfer Setup" screen.
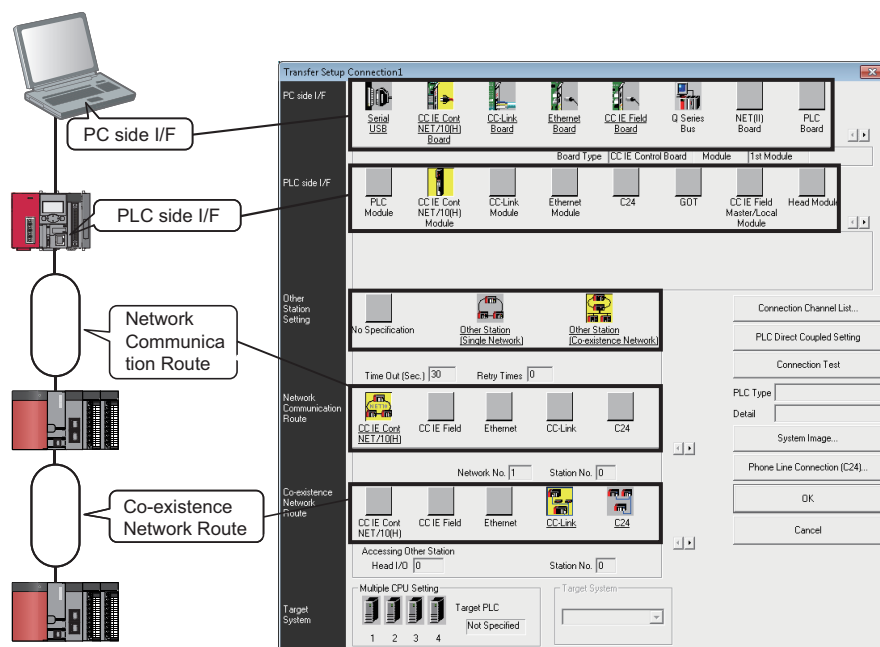
Operating procedure

1. On the "Transfer Setup" screen, specify the connection interface of a personal computer to which GX LogViewer has been installed for "PC side I/F".

2. Specify the connection interface of the programmable controller CPU for "PLC side I/F".
When connecting to a Built-in Ethernet port CPU, the QCPU/LCPU on the network can be searched and specified.
(☞ Page 49 Searching and specifying a Built-in Ethernet port CPU module on the network)

3. Specify whether or not any other station is present for "Other Station Setting".

4. Select the network type, network number, station number, and start I/O of the network routed for accessing the programmable controller CPU on another station for "Network Communication Route" or "Co-existence Network Route", and click the [OK] button.

■Searching and specifying a Built-in Ethernet port CPU module on the network

Search a Built-in Ethernet port CPU module on the network on the "PLC side I/F Detailed Setting of PLC module" screen to connect.

Operating procedure

1. Select "Ethernet board" for "PC side I/F" on the "Transfer Setup" screen, and double-click "CPU module" for "PLC side I/F".

2. Select the CPU mode (LCPU or QCPU (Q mode)) to be connected to a personal computer for "PLC Mode".

3. Select "Connection via HUB", and click the [Find CPU (Built-in Ethernet port) on Network] button.

4. Select a target CPU module form the connection destination CPU information list, and click the [Selection IP Address Input] button.

5. Click the [OK] button.

Precautions

- For Windows Vista® or later, the warning message may be displayed when the [Find CPU (Built-in Ethernet port) on Network] button is clicked.
- Click the [Unblock] button for Windows Vista®, and click the [Allow access] button for Windows® 7 or later to continue the operation.

■Setting example (for CC-Link system)
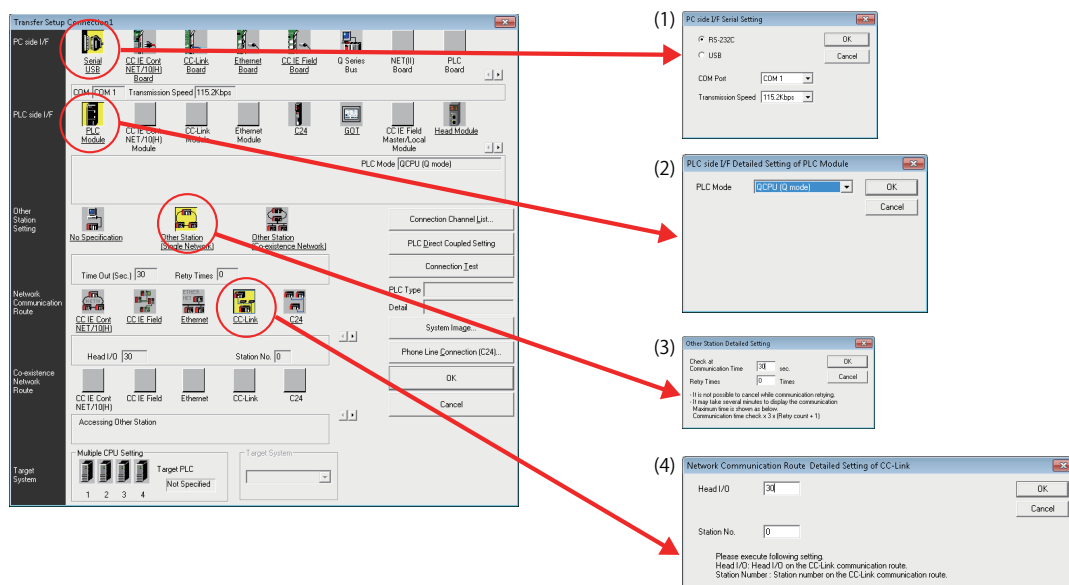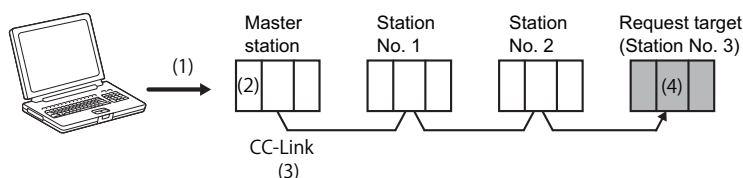
Precautions

When the CPU module is connected directly or via a serial communication module, the accessible station numbers when accessing the programmable controller CPU on another station via CC-Link are 0 (master) to 63.
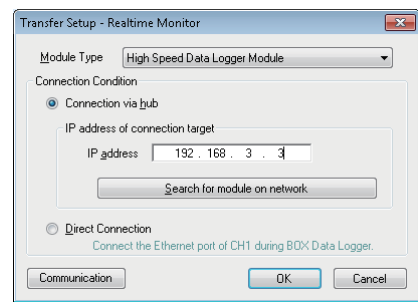
7.4 Connecting to Data logger/Data communication

RCPU ✕ | R Analog ✕ | QnUDVCPU ✕ | High Speed Data Logger ■ | High Speed Data Communication ■ | Q Analog ✕ | LCPU ✕ | L Analog ✕ | BOX Data Logger ■ | Others ✕

When connecting to Data logger/Data communication, "High Speed Data Logger Module", "High Speed Data Communication Module", or "BOX Data Logger" to be connected is required to be specified in the "Transfer Setup" screen.

Transfer setup screen

Window

Select "High Speed Data Logger Module", "High Speed Data Communication Module", or "BOX Data Logger" on the "Connection Destination" screen.

Method for connecting to Data logger/Data communication

The methods for connecting to Data logger/Data communication are shown below.

Item	Reference
Connection method	Page 51 Connecting via a hub
	Page 51 Connecting directly

Connecting via a hub

Connect to Data logger/Data communication via a hub.

When IP address is set to Data logger/Data communication, specify Data logger/Data communication to be connected by either one of the following methods.

■Entering the IP address of Data logger/Data communication to be connected directly to specify it

Operating procedure

1. Select "Connection via hub" on the "Transfer Setup" screen.

2. Enter the IP address of Data logger/Data communication to be connected in "IP address", and click the [OK] button.

Precautions

Communication with Data logger/Data communication cannot be performed when the guest account is used to log in the operating system of a personal computer.

■Searching for Data logger/Data communication on the network to specify it

Operating procedure

1. Click the [Search for module on network] button on the "Transfer Setup" screen.
The Data logger/Data communication information list is displayed.

2. Select the Data logger/Data communication to be connected from the information list, and click the [OK] button.

3. Click the [OK] button on the "Transfer Setup" screen.

Connecting directly

Connect Data logger/Data communication to an Ethernet port of a personal computer directly with a crossing cable.

Specifying IP address is not required for direct connection.

A straight cable can be used for BOX Data Logger.

Operating procedure

Select "Direct Connection" on the "Transfer Setup" screen, and click the [OK] button.

7

8 USING TREND GRAPH FUNCTION

| RCPU | R Analog | QnUDVCPU | High Speed Data Logger | High Speed Data Communication | Q Analog | LCPU | L Analog | BOX Data Logger | Others |

8.1 Overview

This function is for displaying the data sampled with the logging function of respective modules, a trace result of GX Works2 sampling trace, or a simulation result saved with FLEXIBLE HIGH-SPEED I/O CONTROL Module Configuration tool in graph format.

The following display methods are available for the trend graph function.

- Historical trend graph
- Realtime trend graph
- Realtime monitor graph
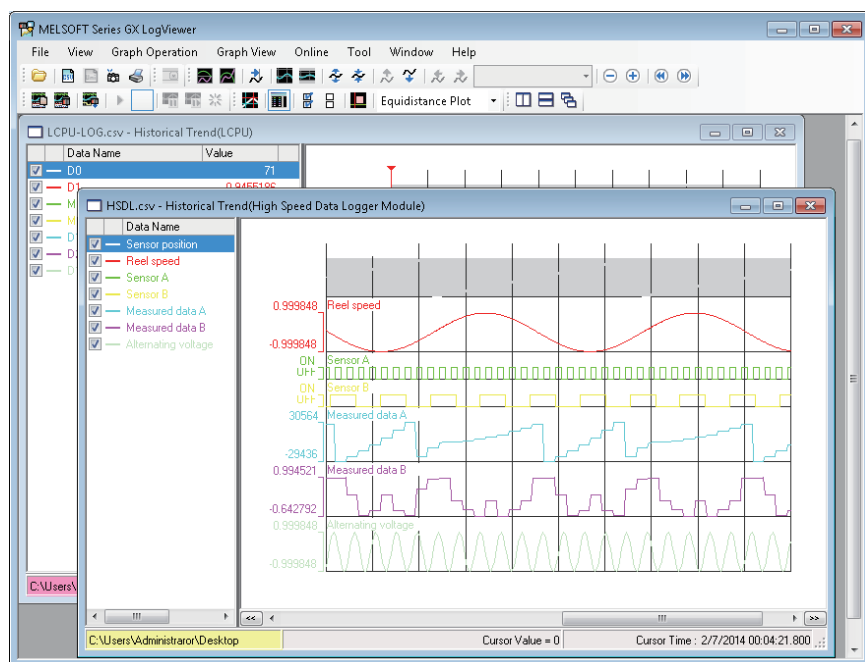
Modules/files supporting the Historical trend graph/Realtime trend graph/Realtime monitor graph are shown below.

○: supported, ×: not supported

Series	Supported module/file	Historical trend graph	Realtime trend graph	Realtime monitor graph
MELSEC iQ-R series	RCPU	○	×	○
	Analog module	○	×	×
MELSEC-Q series	QnUDVCPU	○	×	×
	High Speed Data Logger Module	○	○	×
	High Speed Data Communication Module	×	○	×
	Analog module	○	×	×
MELSEC-L series	LCPU	○	×	○
	Analog module	○	×	×
Others	BOX Data Logger	○	○	×
	CSV file in GX LogViewer format	○	×	×

Historical trend graph

RCPU | R Analog | QnUDVCPU | High Speed Data Logger | ~~High Speed Data Communication~~ | Q Analog | LCPU | L Analog | BOX Data Logger | Others
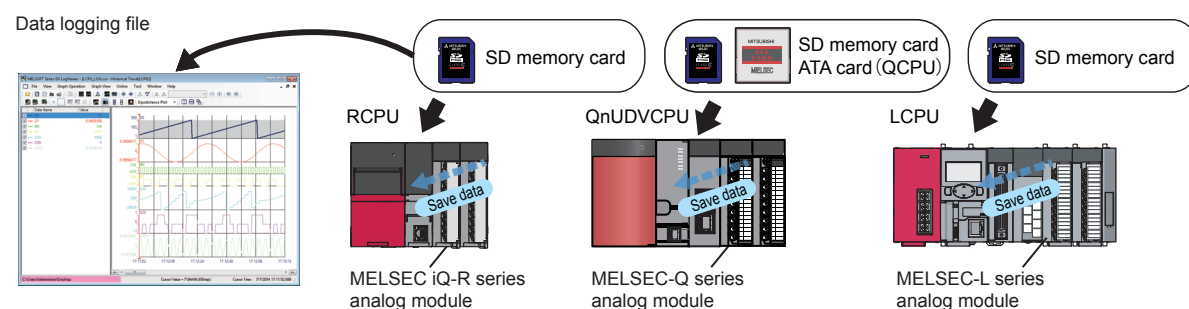
Display Data logging file saved in a memory card in a module and Data logging file data, sampling trace data, and a simulation result in a personal computer.
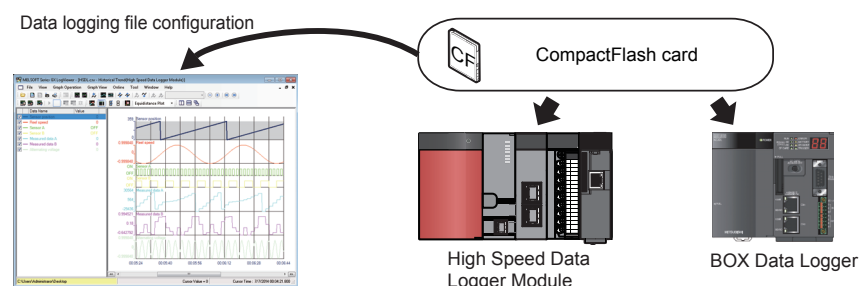
Saved past data can be confirmed anytime.

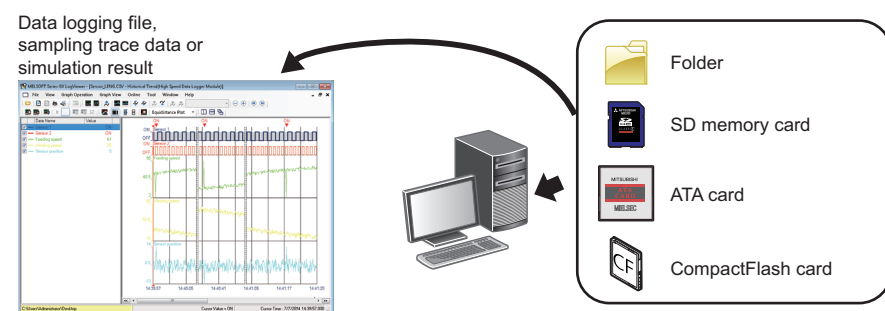## ■Displaying data sampled with logging function of CPU module/Analog module

Data logging file

SD memory card

RCPU

MELSEC iQ-R series analog module

SD memory card
ATA card (QCPU)

QnUDVCPU

MELSEC-Q series analog module

SD memory card

LCPU

MELSEC-L series analog module

Save data

■Displaying data sampled by Data logger

Data logging file configuration

CompactFlash card

High Speed Data Logger Module

BOX Data Logger

■Displaying data saved in personal computer or in memory medium connected to personal computer

Data logging file, sampling trace data or simulation result

Folder

SD memory card

ATA card

CompactFlash card

8

8 USING TREND GRAPH FUNCTION
8.1 Overview
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Realtime trend graph

RCPU | R Analog | QnUDVCPU | High Speed Data Logger | High Speed Data Communication | Q Analog | LCPU | L Analog | BOX Data Logger | Others
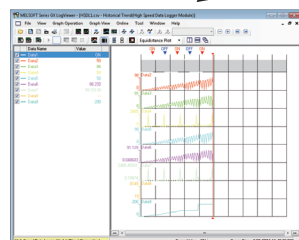
Display the most recent data sampled by Data logger/Data communication.

Data are constantly updated so that the data history from the start of monitoring up to the present time can be checked.
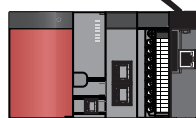
To display the Realtime trend graph, a personal computer and a module need to be connected to each other online.

Logged data
Samples data in real time, and displays them.

BOX Data Logger

High Speed Data Logger Module
High Speed Data Communication Module

Realtime monitor graph

RCPU | R Analog | QnUDVCPU | High Speed Data Logger | High Speed Data Communication | Q Analog | LCPU | L Analog | BOX Data Logger | Others

The most recent data sampled by RCPU/LCPU are displayed.

Data are constantly updated so that the data history from the start of monitoring up to the present time can be checked.

To display the Realtime monitor graph, a personal computer and a module need to be connected to each other online.

Sampled data
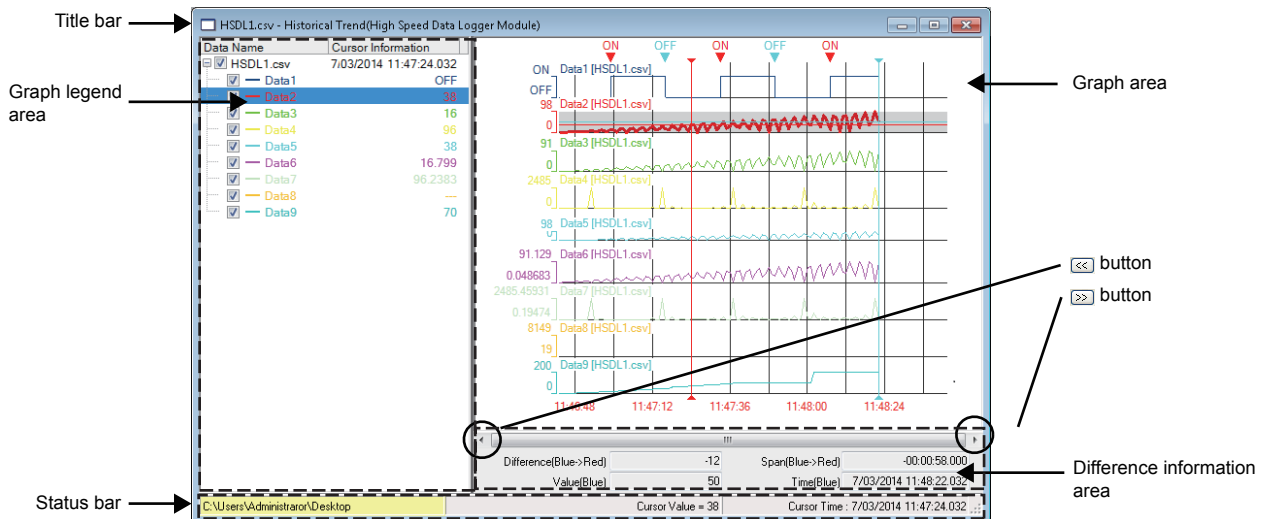Samples data in real time, and displays them.
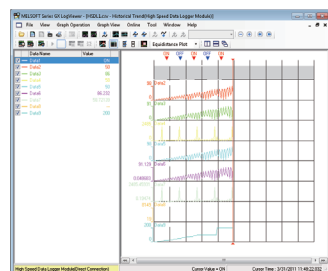
LCPU

RCPU

8.2 Screen Configuration

This section explains the screen configuration of trend window.

Trend window

Displayed items

| Item	Description	Reference
Title bar	• Historical trend graph: logging file name — Historical Trend (module name) "Sampling trace file name — Historical Trend (sampling trace)" is displayed for sampling trace data. • Realtime trend graph: logging setting name — Realtime Trend (module name) [monitoring status] • Realtime monitor graph: Realtime Monitor (module name) [monitoring status]	—
Graph legend area	• Displays a list of data names and their values/status that can be displayed as graphs. (Up to 32 legends) • "Device/Label" is displayed as a display item instead of "Data Name" on the realtime monitor window.	Page 56 Graph legend area
Graph area	Displays data selected in the graph legend area.	Page 57 Graph area
[<<]	Displays the previous graph.	Page 90 Displaying previous graph
[>>]	Displays the next graph.	Page 92 Displaying next graph
Difference information area	Displays difference information between two cursors when the Multiple cursor function is activated.	Page 58 Difference information area
Status bar	Displays basic status of the selected data.	Page 59 Status bar

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Graph legend area

Data value/status at the cursor displayed as a standard (vertical red cursor line)

Data names displayed in the list can be added/deleted. (☞ Page 75 Adding/deleting data to/from graph legend area)

The background color, color and type of graph line, and font size can be changed.

• Select [Graph Operation] ⇨ [Graph Legends] (▥) to switch displaying/hiding the graph legend area.

• Select [Graph Operation] ⇨ [Adjust Font Size of Graph Legends] ⇨ [Expansion Font Size]/[Reduction Font Size] to change the font size.

Graph area
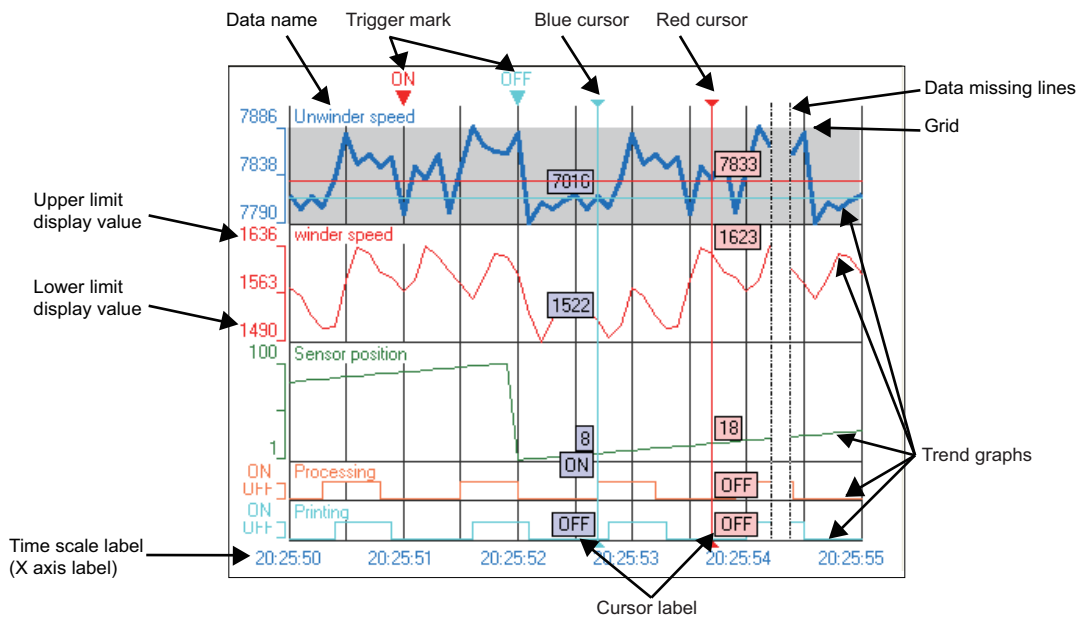
The background color, color and type of graph line, trigger mark color, and grid color can be changed. (☞ Page 98 Changing Graph Appearance)

The maximum number of graphs that can be displayed in one trend window is 32.

For a realtime monitor window, it is up to 31.

Displayed items

Item	Description	Reference
Upper limit display value/Lower limit display value	Displays a maximum value/minimum value of the display range for each trend graph.	Page 84 Specifying upper/lower limit display value
Time scale label[1],[3] (X axis label)	Displays labels for the time scale. • Time[2]/Date[2]/Date and Time[2]/Index Since Analog module does not have time information in the logging data, only Index display is available.	Page 97 Changing display of time scale labels
Red cursor	A cursor that is displayed as a standard (Displayed at the left edge of the graph area for the first activation.)	Page 73 Checking and comparing data values/status
Blue cursor	A cursor that is displayed for comparison. It is displayed only when the Multiple cursor function is activated. (Displayed at the left edge of the graph area for the first activation.)	
Trigger mark	A mark to indicate the point where a trigger condition (ON/OFF) is satisfied	Page 98 Changing color and type of graph
Cursor label	Displays value/status at the point of intersection between a cursor and graphs.	Page 95 Displaying cursor labels
Data missing lines	Lines to indicate the point where data could not be sampled	Page 104 Graph Display for Missing Data or Time Reversed Data
Grid	Vertical lines/horizontal lines to divide the graph drawing area	Page 96 Displaying grid

[1] A logging file, in which any of "year", "month", "day", "hour", "minute", or "second" of the data line output format (can be set with Configuration tool) is missing, is displayed with Index only.

[2] *(asterisk) is displayed when the date information does not exist, or when the date information does not contain "year, month, and day" information.
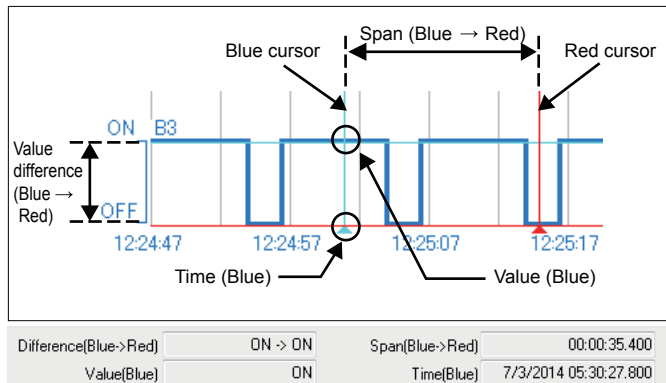
[3] For a realtime trend window or a realtime monitor window, the displayed date and time depend on the time setting for CPU module. Therefore, it may be different from the time on the personal computer in use.

Difference information area

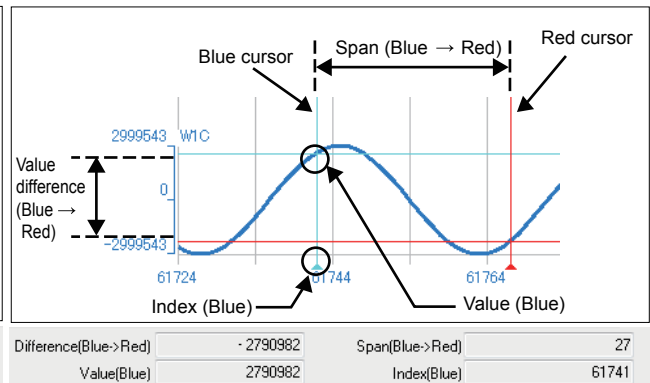The following display methods are available for the difference information area.

- Time display
- Index display

<For time display>   <For index display>

Since Analog module does not have time information in the logging data, only Index display is available.

Displayed items

Item	Description
Difference (Blue → Red)	Displays difference information of value/status. • When a graph is bit data (ON → OFF, OFF → ON, ON → ON, OFF → OFF) • When a graph is word data (Value at the red cursor — Value at the blue cursor)
Span (Blue → Red)	Displays difference information of time/index. (Time/Index at the red cursor — Time at the blue cursor/Index) Time display: Data sampled by CPU module are displayed up to µ unit, and data sampled by Data logger/Data communication are displayed up to a microsecond unit.
Value (Blue)	Displays the value/status at the point of intersection between the selected trend graph and the blue cursor.
Time (Blue)[*1]/ Index (Blue)[*1]	Displays time/index at the blue cursor.

*1 *(asterisk) is displayed when the date information does not exist, or when the date information does not contain "year, month, and day" information.

Status bar

< Example: When directly connected to High Speed Data Logger Module, and the index display is set for Realtime trend >

High Speed Data Logger Module(Direct Connection)	Online	Cursor Value = OFF	Cursor Index : 192
(1)	(2)	(3)	(4)

< Example: When connected to LCPU using Ethernet, and the time display is set for Historical trend >

LCPU(Host Station-192.168.3.39):/LOGGING/LOG01/00000...	Cursor Value = OFF(MAIN9,65Step)	Cursor Time : 5/5/2014 05:27:31.024
(1)	(3)	(4)

Step number — (from MAIN9,65Step)
Program name

Displayed items

Item	Description
(1) Source to obtain data	Displays the source of data being displayed with respective characters and colors.
	Displayed characters ■Historical trend graph Displays the source to obtain the Data logging file being displayed. • Connecting to RCPU: RCPU (connection channel):/file pass • Connecting to QCPU or QnUDVCPU: QCPU (connection channel):/file path • Connecting to High Speed Data Logger Module: High Speed Data Logger Module(IP address or "Direct Connection"):/file path • Connecting to LCPU: LCPU (connection channel):/file pass • Connecting to BOX Data Logger: BOX Data Logger (IP address or "Direct Connection"):/file pass • A data is saved in a personal computer or a memory medium connected to it: File path ■Realtime trend graph Displays an IP address of Data logger/Data communication being communicated with, or "Direct Connection". ■Realtime monitor graph • Connecting to RCPU: RCPU (connection channel) • Connecting to LCPU: LCPU (connection channel)
	Background color

Data Source	Background color
MELSEC iQ-R series CPU module QnUDVCPU/QnUDPVCPU	Pale blue
MELSEC iQ-R series analog module High Speed Data Logger Module High Speed Data Communication Module MELSEC-Q series analog module	Light yellow
MELSEC-L series CPU module	Rose
MELSEC-L series analog module Simulation result saved with Flexible High Speed I/O Control Module setting tool	Light green
Sampling trace data	Gold
BOX Data Logger Energy Measuring Unit	Lime

Item	Description
(2) Communication status	Displays "Online" or "Offline". (For the Realtime trend graph/Realtime monitor graph only)
(3) Cursor value	Displays the value at the point of intersection between the selected trend graph and the red cursor. • Program name[*1] and step number[*1] of the logging data
(4) Cursor time[*2]/Index	Displays time or index at the red cursor.

*1   These are displayed only when data logged by CPU module is displayed.

*2   *(asterisk) is displayed when the date information does not exist, or when the date information does not contain "year, month, and day" information.

8

8.3 Displaying Trend Graph

This section explains how to display logging data sampled by each module on a trend graph window.

The total number of records that can be displayed on a trend graph and in an event list is 1000001.

☞ Page 60 Displaying logged devices (Historical trend graph)

☞ Page 61 Displaying current device status (Realtime trend graph)

☞ Page 62 Displaying current device status (Realtime monitor graph)

☞ Page 72 Operating Realtime trend graph/Realtime monitor graph monitoring status

> **Point** ℘
>
> It takes more time to draw graphs when a large number of points are to be plotted.
>
> Using OpenGL® improves that as follows:
>
> • For Realtime trend graph and Realtime monitor graph: Graphs can be drawn at high speed.
>
> • For Historical trend graph: The time required to open the file can be shortened. Graphs can be drawn at high speed in response to the scroll operation of the trend window.
>
> [Tool] ⇨ [Option] ⇨ [Use an OpenGL and Draw Graphs]

Displaying logged devices (Historical trend graph)

| RCPU | R Analog | QnUDVCPU | High Speed Data Logger | ✕ High Speed Data Communication | Q Analog | LCPU | L Analog | BOX Data Logger | Others |

Display the specified file saved in a CPU module or a memory medium on the Historical trend graph.

Saved file	Description
Logging file in CPU module/Analog module	Display Data logging file saved in an ATA card/SD card in CPU module with the logging function of CPU module/Analog module in a Historical trend graph.
Logging file saved with the data logging function of Data logger	Display Data logging file saved in a CompactFlash card with the data logging function of Data logger in a Historical trend graph.
Logging file saved in a personal computer	Display Data logging file, sampling trace data, or a simulation result saved with FLEXIBLE HIGH-SPEED I/O CONTROL Module Configuration tool, which are saved in a personal computer or a connected memory medium to it, in a Historical trend graph. For the methods of saving logging file to a personal computer or a memory medium, refer to the following section. ☞ Page 123 SAVING LOGGING FILES TO PERSONAL COMPUTER

Operating procedure

■Displaying logging file saved with logging function of CPU module/Analog module

1. Select [Online] ⇨ [Open Logging File] (🖼).

2. Select "RCPU", "QCPU", or "LCPU" on the "Connection Destination" screen.

3. Specify CPU module to be connected and its route on the "Transfer Setup" screen.

4. Select a Data logging file (*.txt, *.csv, or *.bin) from the list on the "Logging File" screen, and click the [Open File] button. (More than one file cannot be selected.)

■Displaying logging file saved with logging function of Data logger

1. Select [Online] ⇨ [Open Logging File] (🖼).

2. Select "High Speed Data Logger Module" or "BOX Data Logger" on the "Connection Destination" screen.

3. Specify Data logger to be connected and its route on the "Transfer Setup" screen.

4. Select a Data logging file (*.csv or *.bin) from the list on the "Logging File" screen, and click the [Open File] button. (More than one file cannot be selected.)

■**Displaying logging file saved in personal computer**

1. Select [File] ⇨ [Open] (📁).

2. Drag and drop Data logging file, sampling trace data, or a simulation result saved with FLEXIBLE HIGH-SPEED I/O CONTROL Module Configuration tool to the main widow.
(Example: Displaying "HSDL.CSV" on the desktop)
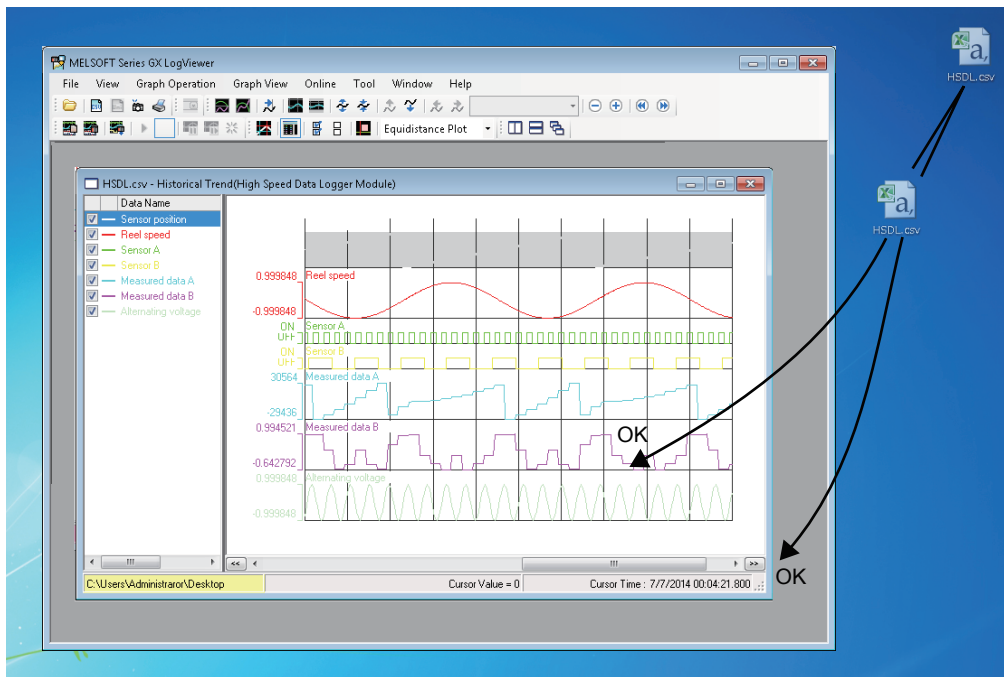
Displaying current device status (Realtime trend graph)

Display the specified data logging settings of Data logger/Data communication on the Realtime trend graph.

Operating procedure

■**Displaying current device status of Data logger on trend graph**

1. Select [Online] ⇨ [Realtime Monitor] (📊).

2. Select "High Speed Data Logger Module" or "BOX Data Logger" on the "Transfer Setup" screen.

3. Select a data logging setting to be set from the list on the "Select Logging Setting" screen, and click the [Open] button.

■**Displaying current device status of Data communication on trend graph**

1. Select [Online] ⇨ [Realtime Monitor] (📊).

2. Select "High Speed Data Communication Module" on the "Transfer Setup" screen.

3. Select a label group setting to be set from the list on the "Select Label Group Setting" screen, and click the [Open] button.

Displaying current device status (Realtime monitor graph)

RCPU ⊗ R Analog ⊗ QnUDVCPU ⊗ High Speed Data Logger ⊗ High Speed Data Communication ⊗ Q Analog ⊗ LCPU ⊗ L Analog ⊗ BOX Data Logger ⊗ Others

Display the device information configured with the realtime monitor setting on the Realtime monitor graph.

RnPCPU, RnSFCPU do not support the realtime monitor function.

Operating procedure

■Starting the realtime monitor function

1. Select [Online] ⇨ [Realtime Monitor] (🖼).

2. Select "RCPU" or "LCPU" on the "Connection Destination" screen.

3. For RCPU, specify the connection method on the "Transfer Setup" screen.
For LCPU, specify the connection method and its route on the "Transfer Setup" screen.

4. Configure the monitoring setting on the "Realtime Monitor Setting" screen, and click the [Monitor Start] button. (☞ Page 62 Realtime monitor setting (for LCPU))
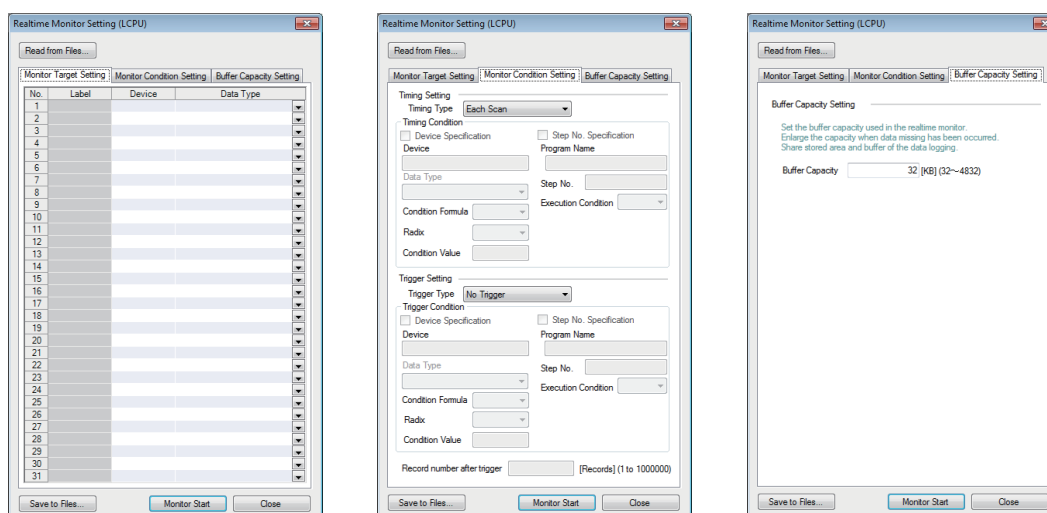
■Configuring the realtime monitor setting offline

1. Select [Online] ⇨ [Realtime Monitor] (🖼).

2. Select "RCPU" or "LCPU" on the "Connection Destination" screen, and select the "Execute the realtime monitor setting in offline mode" checkbox.

3. Click the [OK] button.

4. Configure the monitoring setting on the "Realtime Monitor Setting" screen. (☞ Page 62 Realtime monitor setting (for LCPU))

5. Click the [Save to Files] button to save the setting file to arbitrary folder.

By clicking the [Read from Files] button on the "Realtime Monitor Setting" screen and specifying the setting file, the realtime monitor setting configured in advance can be displayed.

Realtime monitor setting (for LCPU)

The settings for Monitor Target, Monitor Condition, and Buffer Capacity are configured on the "Realtime Monitor Setting" screen.

■The [Monitor Target Setting] tab

Specify the device to be monitored and its data type.

Type	Device[*1],[*7]
Bit device	X, DX, Y, DY, M, L, F, SM, V, B, SB, T (contact)[*2], T (coil)[*3], ST (contact)[*2], ST (coil)[*3], C (contact)[*2], C (coil)[*3], FX, FY, BL□\S, J□\X[*6], J□\Y[*6], J□\SB[*6]
Bit device (Bit-specified word device)	D, SD, W, SW, R, ZR, FD, U□\G[*6], J□\W[*6], J□\SW[*6]
Word device	T (current value), ST (current value), C (current value), D, SD, W, SW, R, ZR, Z[*4], FD, U□\G[*6], J□\W[*6], J□\SW[*6]
Word device (Digit-specified bit device)[*5]	X, Y, M, L, F, SM, V, B, SB, BL□\S, J□\X[*6], J□\Y[*6], J□\SB[*6]

*1 Although index modification can be specified, indirect specification is not available to the above devices excluding FX, FY, FD, BL□\S, and bit-specified word device.

*2 T (contact), ST (contact), and C (contact) are specified with TS, SS, and CS respectively.

*3 T (coil), ST (coil), and C (coil) are specified with TC, SC, and CC respectively.

*4 'ZZ' can be also specified for index modification. It can be specified regardless of the PLC parameter setting.

*5 Digit specification for bit device is available only for K1 to K8.

*6 Specifying devices for modules which do not exist or inaccessible devices of a module will not result in an error, but undefined value will be displayed.

*7 Local device of the program set in the "Program Name" can be monitored when selecting the "Step No. Specification" on the "Timing Condition" screen.

■The [Monitor Condition Setting] tab - Timing Type

Item	Description
Each Scan	Monitors data at the timing of END processing for each scan.
Condition Specification	Monitors data at the timing of the specified condition.

■The [Monitor Condition Setting] tab - Timing Condition - Device Specification

Data at a certain point when the specified device status has satisfied the specified condition at the END processing are monitored.

Item	Description		Setting range
Device[*1]	Bit device	X, Y, M, L, F, SM, V, B, SB, T (contact)[*2], ST (contact)[*2], C (contact)[*2], FX, FY, BL□\S, J□\X, J□\Y, J□\SB	—
	Bit device (Bit-specified word device)	D, SD, W, SW, R, ZR, FD, U□\G, J□\W, J□\SW	—
	Word device	T (current value), ST (current value), C (current value), D, SD, W, SW, R, ZR, Z, FD, U□\G, J□\W, J□\SW	—
	Word device (Digit-specified bit device)[*3]	X, Y, M, L, F, SM, V, B, SB, BL□\S, J□\X, J□\Y, J□\SB	—
Condition Formula	■Bit device is specified "↑": When bit device rises 　　Monitors data when the specified device status is changed from OFF to ON. "↓": When bit device falls 　　Monitors data when the specified device status is changed from ON to OFF. ■Word device is specified "=": When word device meets the specified value 　　Monitors data when the current value of the specified device satisfies the condition value. "Change": When word device data is changed 　　Monitors data when the current value of the specified device is changed.		• Bit device specification "↑", "↓" • Word device specification "=", "Change"
Radix	Set a radix of the condition value when word device is specified.		Decimal/hexadecimal
Condition Value	Set a value to be compared with the device.		• Decimal: -32768 to 32767 • Hexadecimal: 0H to FFFFH

*1 Index modification can be specified to above devices excluding FX, FY, FD, BL□\S, and bit-specified word device. The indirect-specified T, C, ST, D, W, SW, R, ZR, U□\G, J□\W, and J□\SW can be specified.

*2 T (contact), ST (contact), and C (contact) are specified with TS, SS, and CS respectively.

*3 Digit specification for bit device is available only for K1 to K4.

■The [Monitor Condition Setting] tab - Timing Condition - Step No. Specification

Data at a certain point when the status immediately before the execution of the specified step has satisfied the execution condition are monitored.

Item	Description	Setting range
Program Name	Set a program name for the program to be monitored by satisfaction of condition for the specified step No.	Up to 8 characters
Step No.	Set a step No. to monitor data by satisfaction of the condition.	0 to 266239
Execution Condition	Select the monitoring operation condition from the following: "Always": Any time 　　Always monitors data at the specified step. "ON": When the execution condition is ON 　　Monitors data while the operation of the specified step is satisfied. "OFF": When the execution condition is OFF 　　Monitors data while the operation of the specified step is not satisfied. "↑": When the execution condition rises 　　Monitors data at the timing when the operation of the specified step turns into the satisfied state from the not-satisfied state. "↓": When the execution condition falls 　　Monitors data at the timing when the operation of the specified step turns into the not-satisfied state from the satisfied state.	"Always" "ON" "OFF" "↑" "↓"

■The [Monitor Condition Setting] tab - Trigger Type

A trigger mark is displayed on the graph area once a trigger is detected.

Item	Description
No Trigger	Monitors data without specifying a trigger condition.
1 Time	Stops monitoring once the specified number of records has been monitored since a trigger was detected.
Continuous	Keeps monitoring up to the monitoring stop operation, and detect triggers during the period.

■The [Monitor Condition Setting] tab - Trigger Condition -Device Specification

A trigger is generated and detected when the specified device status has satisfied the specified condition at the END processing.

Item	Description		Setting range
Device[*1]	Bit device	X, Y, M, L, F, SM, V, B, SB, T (contact)[*2], ST (contact)[*2], C (contact)[*2], FX, FY	—
	Bit device (Bit-specified word device)	D, SD, W, SW, R, ZR, FD	—
	Word device	T (current value), ST (current value), C (current value), D, SD, W, SW, R, ZR, FD	—
Condition Formula	■Bit device is specified "↑": When bit device rises 　　Generates a trigger when the specified device status is changed from OFF to ON. "↓": When bit device falls 　　Generates a trigger when the specified device status is changed from ON to OFF. ■Word device is specified "=": When word device meets the specified value 　　Generates a trigger when the current value of the specified device satisfies the condition value. "Change": When word device data is changed 　　Generates a trigger when the current value of the specified device is changed.		• Bit device specification 　"↑", "↓" • Word device specification 　"=", "Change"
Radix	Set a radix of the condition value when word device is specified.		Decimal/hexadecimal
Condition Value	Set a value to be compared with the device.		• Decimal: -32768 to 32767 • Hexadecimal: 0H to FFFFH

*1　The indirect-specified and index-modified devices cannot be specified.

*2　T (contact), ST (contact), and C (contact) are specified with TS, SS, and CS respectively.
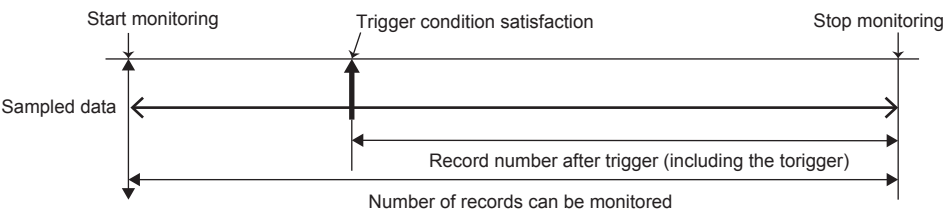
■The [Monitor Condition Setting] tab - Trigger Condition -Step No. Specification

A trigger is generated and detected when the status immediately before the execution of the specified step has satisfied the specified execution condition.

Item	Description	Setting range
Program Name	Set a program name for the program in which a trigger is generated by satisfaction of the condition for the specified step No.	Up to 8 characters
Step No.	Set a step No. to generate a trigger by satisfaction of the condition.	0 to 266239

Execution Condition	Select the trigger generation condition from the following:
	"Always": Any time
	    Generates a trigger at the specified step.
	"ON": When the execution condition is ON
	    Generates a trigger when the operation of the specified step has been satisfied.
	"OFF": When the execution condition is OFF
	    Generates a trigger when the operation of the specified step is not satisfied.
	"↑": When the execution condition rises
	    Generates a trigger at the timing when the operation of the specified step has turned into the satisfied state from the not-satisfied state.
	"↓": When the execution condition falls
	    Generates a trigger at the timing when the operation of the specified step has turned into the not-satisfied state from the satisfied state.
		"Always"
		"ON"
		"OFF"
		"↑"
		"↓"

■The [Monitor Condition Setting] tab - Record number after trigger

To specify the number of record from trigger condition satisfaction to monitoring stop, specify the number for "Record number after trigger".

Item	Description
Record number after trigger	Set the number of records to be monitored after a trigger was detected. (Dropped data occurred after trigger detection are not included in the record after trigger.)

■The [Buffer Capacity Setting] tab

Specify a buffer capacity. Insufficient buffer capacity increases the probability of processing overload[1] occurrence.

*1   QnUDVCPU/LCPU User's Manual (Data Logging Function)

Module	Capacity	Using in conjunction with other functions of CPU module	How to check the free buffer capacity
LCPU	32 to 4832 KB	To use the realtime monitor function in conjunction with the data logging function, set the capacity within the range that meets the following conditions. • The total of data logging buffer capacities + Realtime monitor buffer capacity ≤ 5120 KB The buffer capacity for the data logging function can be checked by reading the logging setting from the CPU module with CPU Module Logging Configuration Tool. QnUDVCPU/LCPU User's Manual (Data Logging Function)	Can be checked with the special register, SD830.

Point

• Setting both of "Device Specification" and "Step No. Specification" in "Timing Condition"
  Data at the time when both conditions are satisfied at the specified step are monitored.
• Monitoring by specifying the time interval
  Monitoring at the fixed time interval (0.5 to 1000 ms) can be performed by setting arbitrary steps to fixed cycle interrupt program and fixed cycle execution type program for "Step No. Specification" in "Timing Condition".

Realtime monitor setting (for RCPU)

The settings for monitor target, monitor conditions (start/stop/timing), and buffer capacity are configured on the "Realtime Monitor Setting" screen.

■The [Monitor Target Setting] tab

Specify the device to be monitored and its data type.

Type	Device[*1],[*2]
Bit device	X, DX, Y, DY, M, L, F, SM, V, B, SB, T (contact)[*3], T (coil)[*4], ST (contact)[*3], ST (coil)[*4], C (contact)[*3], C (coil)[*4], LT (contact)[*3], LT (coil)[*4], LST (contact)[*3], LST (coil)[*4], LC (contact)[*3], LC (coil)[*4], FX, FY, BL□\S, J□\X, J□\Y, J□\SB, J□\B
Bit device (Bit-specified word device)	D, SD, W, SW, RD, R, ZR, FD, U□\G, J □\W, J□\SW, U3E□\G, U3E□\HG
Word device	T (current value)[*5], ST (current value)[*5], C (current value)[*5], D, SD, W, SW, RD, R, ZR, Z, FD, U□\G, J□\W, J□\SW, U3E□\G, U3E□\HG
Word device (Digit-specified bit device)[*6]	X, Y, M, L, F, SM, B, SB, BL□\S, J□\X, J□\Y, J□\SB, J□\B
Double-word device	LT (current value)[*5], LST (current value)[*5], LC (current value)[*5], LZ
Double-word device (Digit-specified bit device)[*6]	X, Y, M, L, F, SM, B, SB, BL□\S, J□\X, J□\Y, J□\SB, J□\B

*1　The indirect-specified and index-modified devices cannot be specified.
*2　The local devices cannot be specified.
*3　T (contact), ST (contact), C (contact), LT (contact), LST (contact), and LC (contact) are specified with TS, STS, CS, LTS, LSTS, and LCS respectively.
*4　T (coil), ST (coil), C (coil), LT (coil), LST (coil) and LC (coil) are specified with TC, STC, CC, LTC, LSTC, and LCC respectively.
*5　T (current value), ST (current value), C (current value), LT (current value), LST (current value), and LC (current value) can be specified with T/TN, ST/STN, C/CN, LT/LTN, LST/LSTN, and LC/LCN respectively.
*6　Digit specification for bit device is available only for K1 to K8.

■The [Monitor Condition Setting] tab -Timing Type

Item	Description
Each Scan	Monitors data at the timing of END processing for each scan.
Condition Specification	Monitors data at the timing of the specified condition.

■The [Monitor Condition Setting] tab - Timing Condition -Device Specification

Data at a certain point when the specified device status has satisfied the specified condition at the END processing are monitored.

Item	Description		Setting range
Device[*1],[*2]	Bit device	X, Y, M, L, F, SM, V, B, SB, T (contact)[*3], ST (contact)[*3], C (contact)[*3], LT (contact)[*3], LST (contact)[*3], LC (contact)[*3], FX, FY, BL□\S, J□\X, J□\Y, J□\SB, J□\B	—
	Bit device (Bit-specified word device)	D, SD, W, SW, RD, R, ZR, FD, U□\G, J□\W, J□\SW, U3E□\G, U3E□\HG	—
	Word device	T (current value)[*4], ST (current value)[*4], C (current value)[*4], D, SD, W, SW, RD, R, ZR, Z, FD, U□\G, J□\W, J□\SW, U3E□\G, U3E□\HG	—
	Word device (Digit-specified bit device)[*5]	X, Y, M, L, F, SM, B, SB, BL□\S, J□\X, J□\Y, J□\SB, J□\B	—
	Double-word device	LT (current value)[*4], LST (current value)[*4], LC (current value)[*4], LZ	—
	Double-word device (Digit-specified bit device)[*5]	X, Y, M, L, F, SM, B, SB, BL□\S, J□\X, J□\Y, J□\SB, J□\B	—
Condition Formula	■Bit device is specified "↑": When bit device rises 　　Monitors data when the specified device status is changed from OFF to ON. "↓": When bit device falls 　　Monitors data when the specified device status is changed from ON to OFF. ■Word device/double-word device is specified "=": When word device/double-word device meets the specified value 　　Monitors data when the current value of the specified device satisfies the condition value. "Change": When word device/double-word device data is changed 　　Monitors data when the current value of the specified device is changed.		• Bit device specification 　"↑", "↓" • Word device/double-word device specification 　"=", "Change"
Radix	Set a radix of the condition value when word device/double-word device is specified.		Decimal/hexadecimal
Condition Value	Set a value to be compared with the device.		• For a word device 　Decimal: -32768 to 32767 　Hexadecimal: 0H to FFFFH • For a double-word device 　Decimal: -2147483648 to 2147483647 　Hexadecimal: 0H to FFFFFFFFH

*1　The indirect-specified and index-modified devices cannot be specified.

*2　The local devices cannot be specified.

*3　T (contact), ST (contact), C (contact), LT (contact), LST (contact), and LC (contact) are specified with TS, STS, CS, LTS, LSTS, and LCS respectively.

*4　T (current value), ST (current value), C (current value), LT (current value), LST (current value), and LC (current value) can be specified with T/TN, ST/STN, C/CN, LT/LTN, LST/LSTN, and LC/LCN respectively.

*5　Digit specification for bit device is available only for K1 to K8.

8

■The [Monitor Condition Setting] tab - Timing Condition - Step No. Specification

Data at a certain point when the status immediately before the execution of the specified step has satisfied the execution condition are monitored.

Item	Description	Setting range
Program Name	Set a program name for the program to be monitored by satisfaction of condition for the specified step No.	Up to 60 characters
Step No.	Set a step No. to monitor data by satisfaction of the condition.	0 to 1228799

Execution Condition	Select the monitoring operation condition from the following:
	"Always":
	    Any time Always monitors data at the specified step.
	"ON": When the execution condition is ON
	    Monitors data while the operation of the specified step is satisfied.
	"OFF": When the execution condition is OFF
	    Monitors data while the operation of the specified step is not satisfied.
	"↑": When the execution condition rises
	    Monitors data at the timing when the operation of the specified step turns into the satisfied state from the not-satisfied state.
	"↓": When the execution condition falls
	    Monitors data at the timing when the operation of the specified step turns into the not-satisfied state from the satisfied state.
		"Always"
		"ON"
		"OFF"
		"↑"
		"↓"

■The [Monitor Condition Setting] tab - Trigger Type

A trigger mark is displayed on the graph area once a trigger is detected.

Item	Description
No Trigger	Monitors data without specifying a trigger condition.
1 Time	Stops monitoring once the specified number of records has been monitored since a trigger was detected.
Continuous	Keeps monitoring up to the monitoring stop operation, and detect triggers during the period.

■The [Monitor Condition Setting] tab - Trigger Condition - Device Specification

A trigger is generated and detected when the specified device status has satisfied the specified condition at the END processing.

Item	Description		Setting range
Device[*1],[*2]	Bit device	X, Y, M, L, F, SM, V, B, SB, T (contact)[*3], ST (contact)[*3], C (contact)[*3], LT (contact)[*3], LST (contact)[*3], LC (contact)[*3], FX, FY	—
	Bit device (Bit-specified word device)	D, SD, W, SW, RD, R, ZR, FD	—
	Word device	T (current value)[*4], ST (current value)[*4], C (current value)[*4], D, SD, W, SW, RD, R, ZR, FD	—
	Double-word device	LT (current value)[*4], LST (current value)[*4], LC (current value)[*4]	—
Condition Formula	■Bit device is specified "↑": When bit device rises 　　Generates a trigger when the specified device status is changed from OFF to ON. "↓": When bit device falls 　　Generates a trigger when the specified device status is changed from ON to OFF. ■Word device/double-word device is specified "=": When word device/double-word device meets the specified value 　　Generates a trigger when the current value of the specified device satisfies the condition value. "Change": When word device/double-word device data is changed 　　Generates a trigger when the current value of the specified device is changed.		• Bit device specification 　"↑", "↓" • Word device/double-word device specification 　"=", "Change"
Radix	Set a radix of the condition value when word device/double-word device is specified.		Decimal/hexadecimal
Condition Value	Set a value to be compared with the device.		• Decimal: -32768 to 32767 • Hexadecimal: 0H to FFFFH

*1 The digit-specified bit devices, indirect-specified and index-modified devices cannot be specified.
*2 The local devices cannot be specified.
*3 T (contact), ST (contact), C (contact), LT (contact), LST (contact), and LC (contact) are specified with TS, STS, CS, LTS, LSTS, and LCS respectively.
*4 T (current value), ST (current value), C (current value), LT (current value), LST (current value), and LC (current value) can be specified with T/TN, ST/STN, C/CN, LT/LTN, LST/LSTN, and LC/LCN respectively.
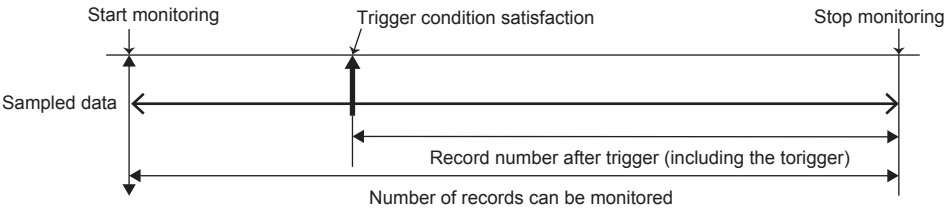
■The [Monitor Condition Setting] tab - Trigger Condition - Step No. Specification

A trigger is generated and detected when the status immediately before the execution of the specified step has satisfied the specified execution condition.

Item	Description	Setting range
Program Name	Set a program name for the program in which a trigger is generated by satisfaction of the condition for the specified step No.	Up to 60 characters
Step No.	Set a step No. to generate a trigger by satisfaction of the condition.	0 to 1228799
Execution Condition	Select the trigger generation condition from the following: "Always": Any time 　　Generates a trigger at the specified step. "ON": When the execution condition is ON 　　Generates a trigger when the operation of the specified step has been satisfied. "OFF": When the execution condition is OFF 　　Generates a trigger when the operation of the specified step is not satisfied. "↑": When the execution condition rises 　　Generates a trigger at the timing when the operation of the specified step has turned into the satisfied state from the not-satisfied state. "↓": When the execution condition falls 　　Generates a trigger at the timing when the operation of the specified step has turned into the not-satisfied state from the satisfied state.	"Always" "ON" "OFF" "↑" "↓"

■The [Monitor Condition Setting] tab - Record number after trigger

To specify the number of record from trigger condition satisfaction to monitoring stop, specify the number for "Record number after trigger".

Item	Description
Record number after trigger	Set the number of records to be monitored after a trigger was detected. (Dropped data occurred after trigger detection are not included in the record after trigger.)

■The [Buffer Capacity Setting] tab

Specify a buffer capacity. Insufficient buffer capacity increases the probability of processing overload[1] occurrence.

*1   MELSEC iQ-R CPU Module User's Manual (Application)

Module	Capacity	Using in conjunction with other functions of CPU module	How to check the free buffer capacity
RCPU	32 to 3008 KB	To use the realtime monitor function in conjunction with the data logging function and the memory dump function, set the capacity within the range that meets the following conditions. • The total of data logging buffer capacities + Memory dump buffer capacity + Realtime monitor buffer capacity ≤ 3072 KB	Can be checked with the special register, SD1484.

Point

- Setting both of "Device Specification" and "Step No. Specification" in "Timing Condition"
  Data at the time when both conditions are satisfied at the specified step are monitored.
- Monitoring by specifying the time interval
  Monitoring at the fixed time interval (0.5 to 1000 ms) can be performed by setting arbitrary steps to fixed cycle interrupt program and fixed cycle execution type program for "Step No. Specification" in "Timing Condition".

Restriction

- "Step No. Specification" cannot be set since the step No. cannot be checked in a program consisting of multiple elements such as ST programs, FB programs, and SFC programs.
- Some devices cannot be monitored (accessed) in a multiple CPU configuration. For details, refer to the following manual.
  (MELSEC iQ-R CPU Module User's Manual (Application))

Considerations for setting "Step No. Specification" for "Timing Condition"

When a realtime monitor is performed, scan time is increased by the realtime monitor processing time.

Set the watchdog timer, and create the interrupt program (set the fixed cycle interval) in consideration of the realtime monitor processing time.

Realtime monitor processing time

The time increase of the scan time when the realtime monitor function is performed can be calculated using the calculation formula below:

■Time increase of scan time

$Trm = KM1 + (KM2 \times N1) + (KM3 \times N2)$ [μs]

Trm: Time increase of scan time when the realtime monitor function is performed

N1: Number of word device points

N2: Number of bit device points

KM1: Constant (Common processing time)

KM2: Constant (Word device processing time)

KM3: Constant (Bit device processing time)

• User device (X, Y, M, L, B, F, SB, V, T, ST, C, LT, LST, LC, D, W, SW, FX, FY, SM, FD, SD, BL□\S)

Constant name	R04CPU	R08/16/32/120CPU	L26CPU/L26CPU-BT	L06CPU	L02CPU
KM1	149.00	149.00	64.00	74.00	79.00
KM2	3.20	3.20	0.56	0.60	0.68
KM3	0.80	0.80	0.75	0.87	0.95

• File register (R, ZR)

Constant name	R04CPU	R08/16/32/120CPU	L26CPU/L26CPU-BT	L06CPU	L02CPU
KM1	149.00	149.00	64.00	74.00	79.00
KM2	3.50	3.50	0.66	0.70	0.78
KM3	1.10	1.10	0.91	1.03	1.11

• Module access device (U□\G, U3E□\G, U3E□\HG), link direct device (J□\W, J□\X, J□\SW, J□\Y, J□\SB, J□\B)

Constant name	R04CPU	R08/16/32/120CPU	L26CPU/L26CPU-BT	L06CPU	L02CPU
KM1	156.00	156.00	112.00	125.12	128.10
KM2	11.60	11.60	12.00	14.20	14.50
KM3	8.90	8.90	13.50	15.00	15.06

Operating Realtime trend graph/Realtime monitor graph monitoring status

RCPU | R Analog ✗ | QnUDVCPU ✗ | High Speed Data Logger ✗ | High Speed Data Communication ✗ | Q Analog ✗ | LCPU | L Analog ✗ | BOX Data Logger ✗ | Others ✗

Change monitoring status and operate graphs on the Realtime trend graph/Realtime monitor graph.

Graph name	Supported module
Realtime trend graph	High Speed Data Logger Module, High Speed Data Communication Module, BOX Data Logger
Realtime monitor graph	RCPU, LCPU

Operating procedure

■Starting monitoring

• Select [Online] ⇨ [Begin Monitor] (▶).

This operation starts communication with a module, and turns the monitoring status from Stop to Run.

■Stopping monitoring

• Select [Online] ⇨ [End Monitor] (■).

This operation disconnects the communication with a module, and stops a trend graph drawing.

■Pausing graph update

• Select [Online] ⇨ [Pause Monitor] (▥).

This operation suspends a trend graph drawing with communication continued. (Data sampling is continued.)

■Restarting graph update

• Select [Online] ⇨ [Restart Monitor] (▥).

This operation restarts the trend graph drawing from the monitoring paused status.

The data sampled while the monitoring had been paused is not displayed on the graph temporarily, but it is displayed on the trend graph after the monitoring is restarted.

■Clearing graphs

• Select [Online] ⇨ [Clear Graph] (❋).

This operation clears trend graphs being drawn in the graph area.

Graph drawing for the data being sampled is restarted immediately after clearing.

8.4 Checking Data

RCPU | R Analog | QnUDVCPU | High Speed Data Logger | High Speed Data Communication | Q Analog | LCPU | L Analog | BOX Data Logger | Others
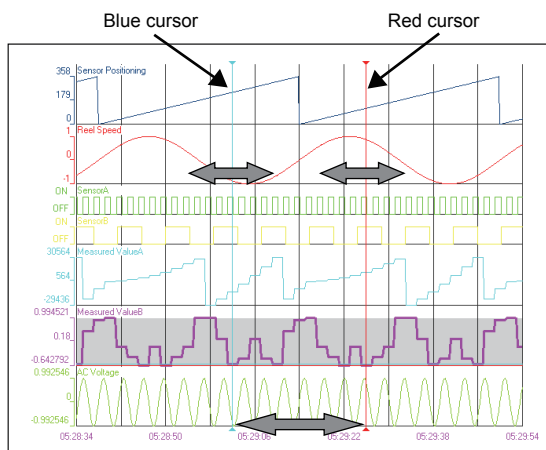
This section explains how to check data displayed on the trend window.

☞Page 73 Checking and comparing data values/status

☞Page 75 Adding/deleting data to/from graph legend area

Checking and comparing data values/status

Check and compare the data values/status on the trend graph.

Precautions

- Stop or pause the monitoring when operating the cursors on the Realtime trend graph/Realtime monitor graph.
- The Multiple cursor function needs to be activated to display the blue cursor.

  For details on the Multiple cursor function and the difference information area, refer to the following sections.

☞Page 94 Displaying multiple cursor

☞Page 58 Difference information area

Moving cursors

Operating procedure

■Moving red cursor or blue cursor

Drag the red cursor/blue cursor to the right/left using a mouse.

Or, press the ⌜Ctrl⌝ + ⌜↑⌝/⌜↓⌝ keys.

■Moving red and blue cursor simultaneously

Drag the red cursor or the blue cursor while pressing the ⌜Shift⌝+⌜Ctrl⌝ keys.

Or, press the ⌜Shift⌝ + ⌜Ctrl⌝ + ⌜↑⌝/⌜↓⌝ keys.

■Moving graph only without moving cursors

Move the horizontal scroll bar right/left on the trend window.

Or, press the ⌜PgUp⌝/⌜PgDown⌝ keys (moving the scroll bar right/left), or press the ⌜Home⌝/⌜End⌝ keys (moving the scroll bar to the right/left periphery).

■Moving cursor by specifying value/time/index

The cursor can be moved to the specified position (value/time/index) by using the Jump cursor function.

For details on the Jump cursor function, refer to the following section.

☞Page 80 Moving cursor by specifying value/time/index

Checking data value/status

■Checking value/status using red cursor

1. Move the red cursor to the position where the value/status is checked.

2. Check the values displayed on the cursor value and the cursor time/index field on the status bar.

■Checking value/status using blue cursor

1. Move the blue cursor to the position where the value/status is checked.

2. Check the values displayed in "Value (Blue)" and "Time (Blue)/Index (Blue)" in the difference information area.

Point

- Data value/status can also be displayed at the cursor label by selecting [Graph View] ⇨ [Cursor Label] (▣).
- The cursor may be moved to the intervening space of plots for an unselected file. In this case, the data value at the cursor is displayed as an estimated value obtained by linear interpolation, and displayed in parentheses.

Comparing data values/status

Operating procedure

1. Move the red cursor and the blue cursor to the two positions where data value/status are compared.

2. Compare the data values/status by the difference of the value displayed in "Difference (Blue → Red)" and "Span (Blue → Red)" in the difference information area.

Adding/deleting data to/from graph legend area

Add/delete the data to be displayed on the graph legend area.

Also, add/delete the logging data in another file to/from the graph legend area on the same trend window.
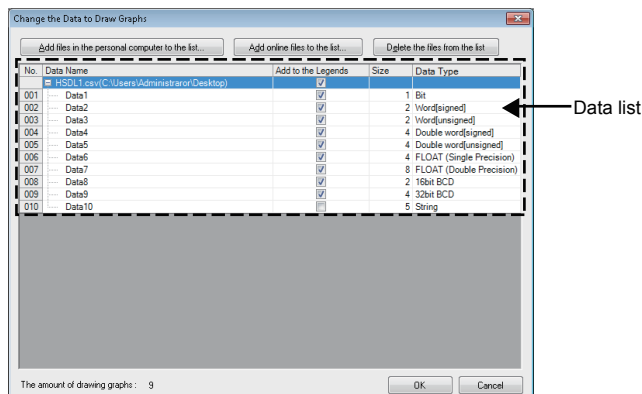
When adding the logging data of another file, in case the display format is set to the equidistance plot display format, it is changed to the time interval plot display format.

For details on the time interval plot display format, refer to the following section.

☞ Page 96 Switching graph plot format

Window

Select [Graph View] ⇨ [Change the Data to Draw Graphs].

Data list

Adding/Deleting data

Operating procedure

■Adding data to graph legend area
Check the data to be displayed on the graph legend area, and click the [OK] button.

■Deleting data from graph legend area
Unselect the data to be deleted on the graph legend area, and click the [OK] button.

Adding/Deleting logging data in another file

Operating procedure

■Adding data stored in a personal computer to graph legend area

1. Click the [Add files in the personal computer to the list] button, and select the file to be added.

2. Check the data to be displayed on the graph legend area, and click the [OK] button.

■Adding data stored in target module to graph legend area

1. Click the [Add online files to the list] button, and set the connection destination. (☞ Page 45 CONNECTING TO MODULE)

2. Select the file to be added on the "Logging File" screen, and click the [Open File] button.

3. Check the data to be displayed on the graph legend area, and click the [OK] button.

■Deleting added file
Select the file to be deleted on the data list, and click the [Delete the files from the list] button.

> *Point*
>
> The file can be also added by dragging and dropping the logging file saved in a personal computer to the data list.

8.5 Operating Trend Graphs

This section explains how to operate trend graphs to improve the efficiency of data check.

> **Point**
>
> - Graph display information can be named and registered to be reflected to other windows. (☞ Page 101 Registering and Reflecting Graphical Display Settings of Trend Windows)
> - Graph display can be set to be reflected automatically when opening the same data logging setting window next time. (☞ Page 103 Reflecting Graph Display Automatically When Opening File)

Displaying/hiding graphs

Display/hide trend graphs in the trend graph area.

Individual display/hide

Display/hide a trend graph in the graph area by selecting data individually from the graph legend area.
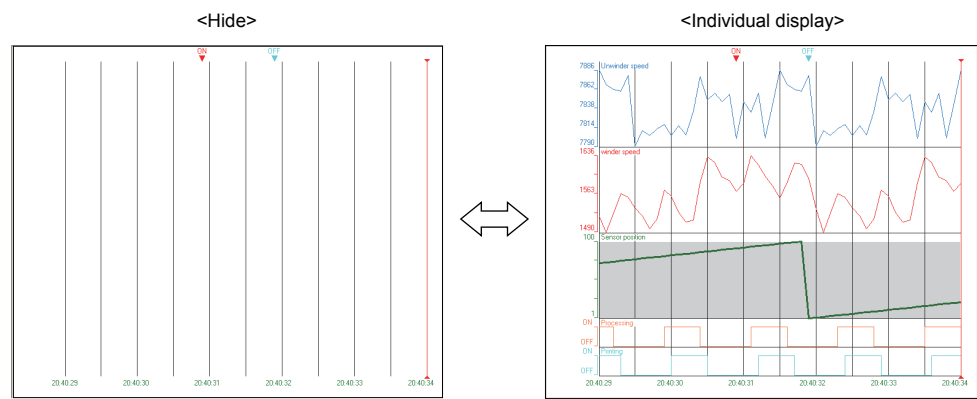
<Hide>   <Individual display>

Operating procedure

<Selecting the check box of graph legend>

To display : Select
To hide   : Unselect

<Double-clicking data on the graph legend area>

Switches display/hide setting by
double-clicking "Data Name" or "Value".

8

Batch display

Display the trend graphs of all the data listed in the graph legend area.
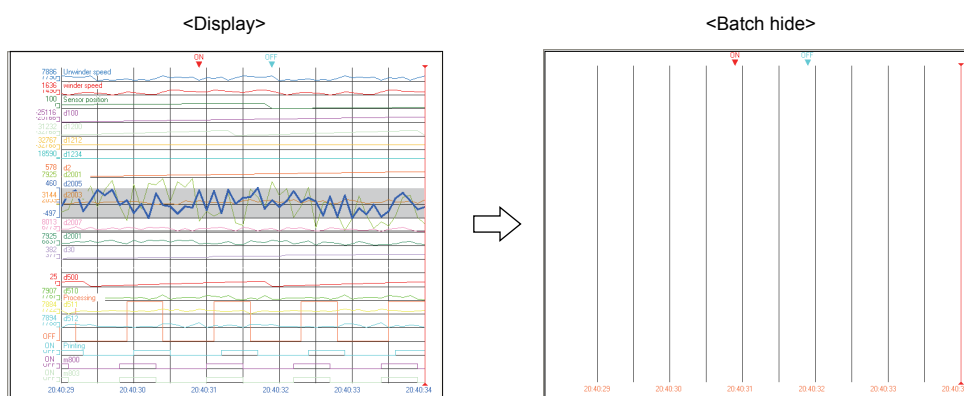

<Hide>　　　　　　　　　　　<Batch display>
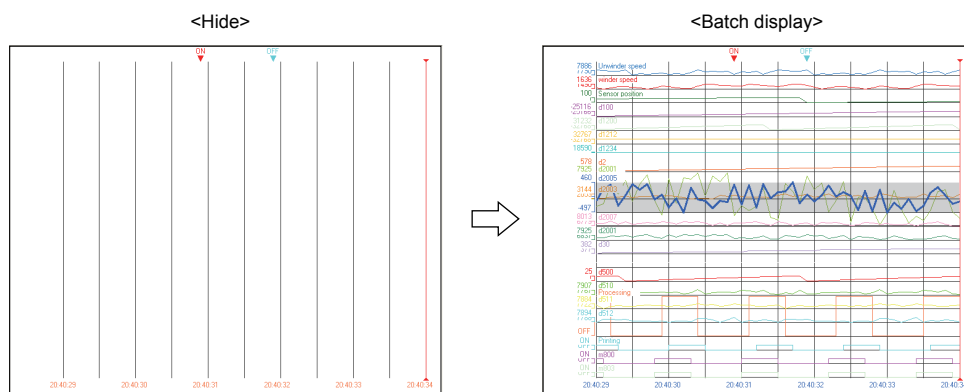
Operating procedure

Select [Graph View] ⇨ [Show All Graphs] (⊟).

Batch hide

Hide the trend graphs of all the data listed in the graph legend area.

<Display>　　　　　　　　　　<Batch hide>

Operating procedure

Select [Graph View] ⇨ [Hide All Graphs] (⊟).

Aligning graphs

Align all the trend graphs displayed in the graph area without overlapping.

Trend graphs are aligned in the order of data listed in the graph legend area.

<Before alignment>

<After alignment>
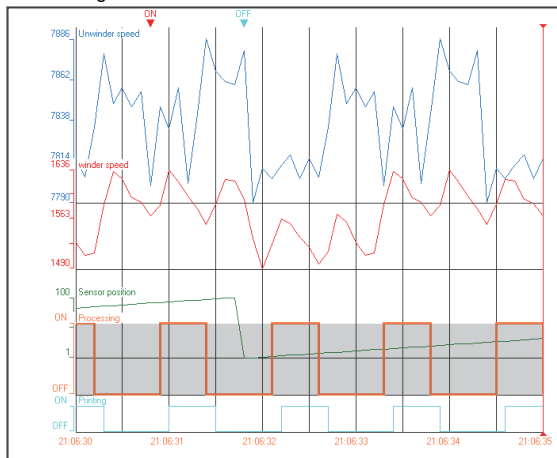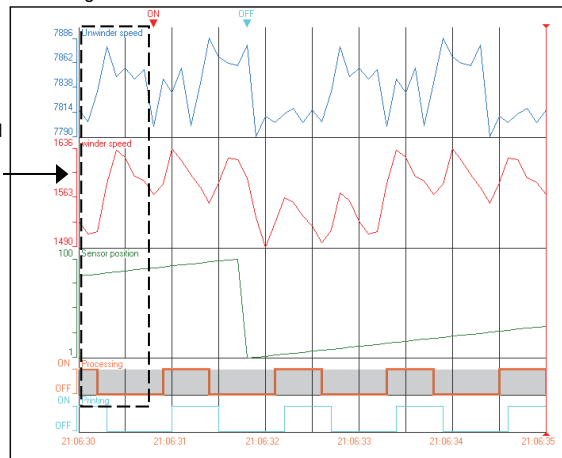
Graphs are aligned in the order that they are displayed in the graph legend area.

Operating procedure

Select [Graph Operation] ⇨ [Graph Alignment] (🔲).

Superimposing graphs

Display all the trend graphs shown in the graph area with them superimposed.

<Before superimposing>

<After superimposing>
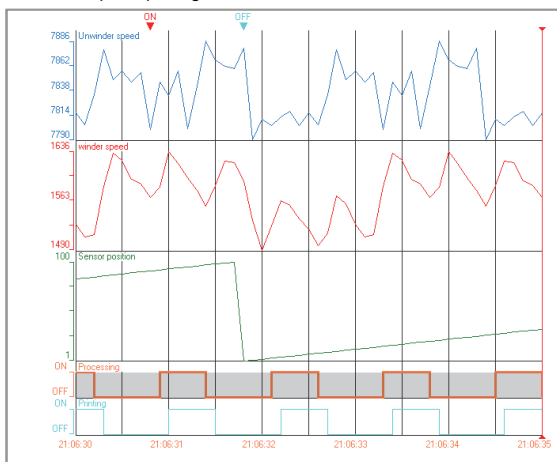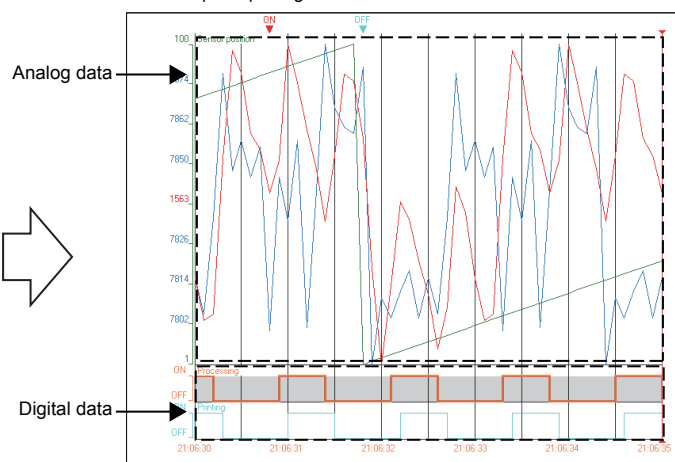
Analog data

Digital data

Operating procedure

Select [Graph Operation] ⇨ [Graph Superimpose] (🔲).

Moving cursor by specifying value/time/index

Use the Jump Cursor function to check data value/status by moving the cursor to the specified value, time, or index position on the trend graph.

Since Analog module does not have time information, the Jump Cursor function can be used only by specifying value or index.

Jump to the position where the condition is satisfied.

[Value search]
Condition search
Value ≧ 400

[Time specification]

[Index specification]
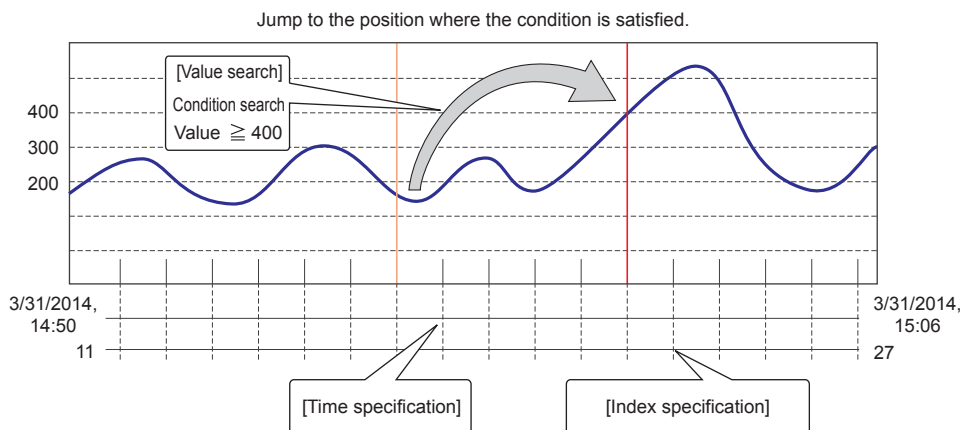
Precautions

When performing the Jump Cursor function on the Realtime trend graph/Realtime monitor graph, stop or pause the monitoring.

Window

Select [Graph Operation] ⇨ [Jump Cursor] ( ).

[Value]

[Time]

[Index]

(Initial Display)

Switch with a tab.

Jumping cursor by searching value

Search the value by specifying type in "Classification" to move the cursor to the position where the condition is satisfied.

The classification varies depending on the data type being selected.

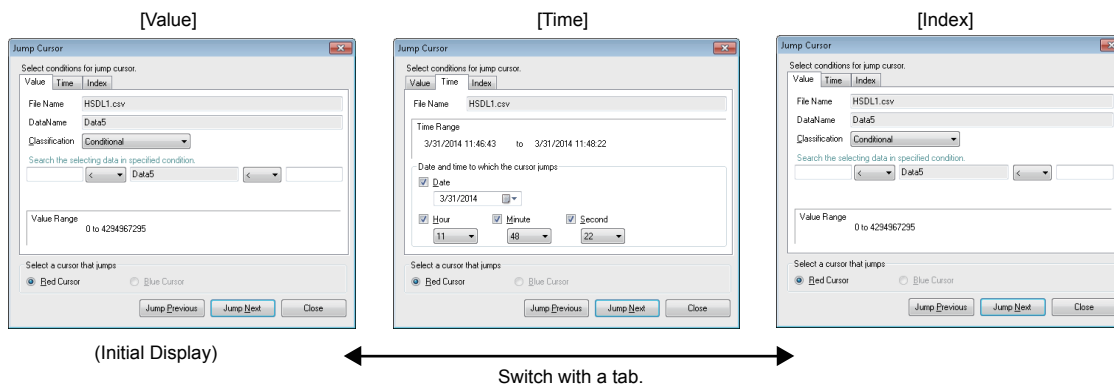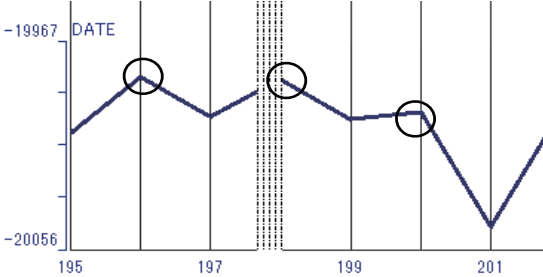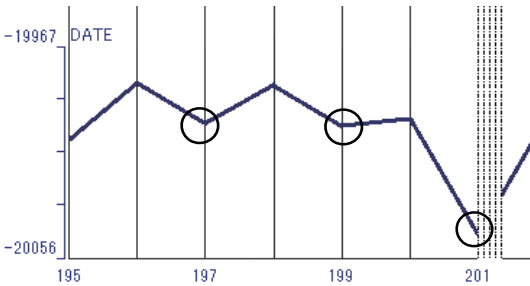| Classification		Description
When the data type is bit	UP	Jumps to the position where the selected data turned from OFF to ON for the first time.
	Down	Jumps to the position where the selected data turned from ON to OFF for the first time.
	Comparison	Compares the values of the selected data and the specified data, and jumps to the position where the condition is satisfied. (☞ Page 82 Comparison of values between data names)
When the data type is other than bit	Conditional	Searches the value by specifying the condition, and jumps to the position where the condition is satisfied. (☞ Page 81 Condition search)
	Maximal	The cursor is moved to the position where the increased value of the selected data starts decreasing. However, the positions where the increased value becomes flat are not considered as the position of maximal value. Example:
	Minimal	The cursor is moved to the position where the decreased value of the selected data starts increasing. However, the positions where the decreased value becomes flat are not considered as the position of minimal values. Example:
	Comparison	Compares the values of the selected data and the specified data, and jumps to the position where the condition is satisfied. ☞ Page 82 Comparison of values between data names

■Condition search

Operating procedure

1. Select "Conditional" from "Classification".

2. Specify a condition and a value.

3. Select the color of the cursor, and click the [Jump Previous]/[Jump Next] button.

The following shows the examples of specifying condition search range.

Condition search range	Example of specification
• When searching for a value in a range between 0 and 100, use both condition combo boxes.	Search the selecting data in specified condition. 0 <= ▼ Data5 <= ▼ 100
• When searching for a value less than 1000, use the condition box on the right side only.	Search the selecting data in specified condition. 0 None ▼ Data5 < ▼ 1000
• When searching for a value -1000 or more, use the condition box on the left side only.	Search the selecting data in specified condition. -1000 <= ▼ Data5 None ▼

Condition search range	Example of specification
• When searching for a value 2500, use the condition box on either side.	Search the selecting data in specified condition. [ ] [None ▼] Data5 [= ▼] [2500]
• When searching for a value other than -15000, use the condition box on either side.	Search the selecting data in specified condition. [-1500] [<> ▼] Data5 [None ▼] [ ]

Precautions

- A rounding error occurs when searching for a floating-point value.
  When a single-precision/double-precision floating-point is entered to the left/right side of the text box, the exponent is normalized by rounding off to two decimal places. A single-precision real number is rounded to 7 significant digits. For data values, single-precision and double-precision values are rounded to 7 and 15 significant digits respectively.
- A comparison with a value which exceeded the number of significant values cannot be performed.
  When checking a match with a value which exceeded the number of significant values, compare the value with values between the approximate values.

Ex.
Checking a match with 1.23456E+10
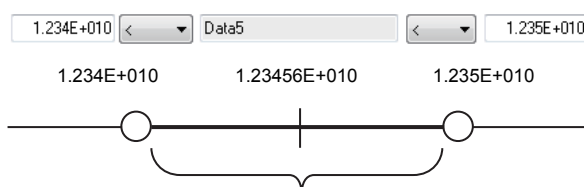
Check a match with values within this range. (Boundary values are not included.)

■Comparison of values between data names

Operating procedure

1. Select "Comparison" from "Classification". (If data, whose data type is the same as the selected data, does not exist, no item is displayed for "Classification".)

2. Specify a condition and a data name.

3. Select the color of the cursor, and click the [Jump Previous]/[Jump Next] button.

Jumping cursor by specifying time

Operating procedure

1. Click the [Time] tab on the "Jump Cursor" screen.

2. Specify date and time for "Date and time to which the cursor jumps".

3. Select the color of the cursor, and click the [Jump Previous]/[Jump Next] button.

The following table shows the setting examples of time condition and their operation results.

Item		Description
Second	Example*1: Result:	Specify '30' for the second only. 2014/06/30 19:36:30 ← previous ← 2014/06/30 19:37:30 → next → 2014/06/30 19:38:30
Minute	Example*1: Result:	Specify '30' for the minute only. 2014/06/30 18:30:00 ← previous ← 2014/06/30 19:30:00 → next → 2014/06/30 20:30:00
Hour	Example*1: Result:	Specify '00' for the hour only. 2014/06/30 00:00:00 ← previous ← 2014/07/01 00:00:00 → next → 2014/07/02 00:00:00

*1 The logging interval is set to 1 second.

Jumping cursor by specifying index

Operating procedure

1. Click the [Index] tab on the "Jump Cursor" screen.

2. Specify the index for "Index to which the cursor jumps".

3. Select the color of the cursor, and click the [Jump Previous]/[Jump Next] button.

8

Specifying upper/lower limit display value

Display a graph by specifying the upper/lower limit display value of the trend graph selected in the graph area.
The upper/lower limit value can be adjusted automatically or manually.

Adjusting graph automatically

Operating procedure

■Adjusting graph within the displayed period
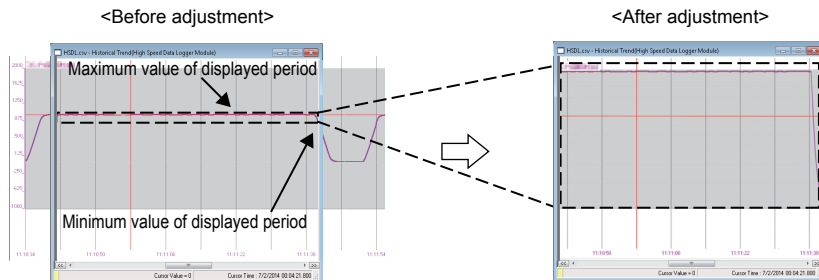
Select [Graph Operation] ⇨ [Auto Adjust Upper/Lower Bound] ⇨ [For Period on Display] (▨).

■Adjusting within the entire period
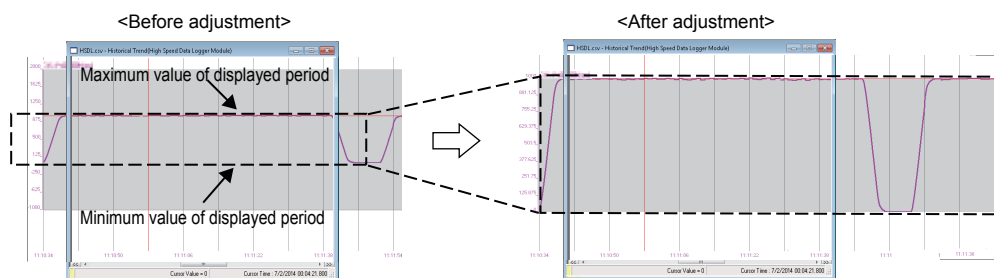
Select [Graph Operation] ⇨ [Auto Adjust Upper/Lower Bound] ⇨ [For All Period] (▨).

Adjusting graph manually

For adjusting a graph manually, enter the upper/lower limit display value in the text box directly.

Data higher than the upper limit value are displayed as the upper limit value, and data less than the lower limit value are displayed as the lower limit value.

■Specifying the value on the graph directly

Specify the upper/lower limit display value directly on each graph.

<Before adjustment>

<After adjustment>

Upper value

Lower value

Specify a value in the text box.
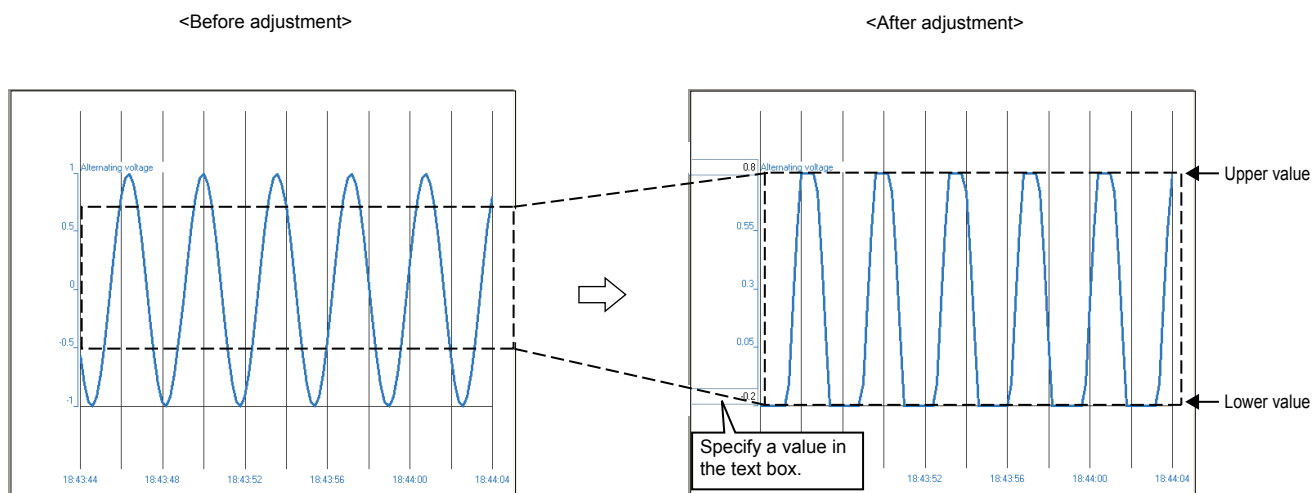
Operating procedure

Double-click the area of graph to be adjusted in the graph area.

Or, select [Graph Operation] ⇨ [Edit Upper/Lower Bound].

Point

The text box to specify the upper/lower limit display value is also displayed by pressing the F12 key.

■Editing upper and lower limit display values in batch

Edit the upper/lower limit display value in batch.

Operating procedure

Select [Graph Operation] ⇨ [Edit Upper/Lower Bound in Batch].

■Entering upper/lower limit display value

The following table shows the applicable ranges of characters, number of characters, and values that can be entered in the text box for the upper/lower limit display value.

Item	Description
Applicable characters	Numerals (0 to 9), alphabets ('E', 'e'), signs ('-', '+', '.'), and decimal point (period) (.) Note that the alphabets ('E', 'e') are for the exponent expression. Entered values are handled as values in a decimal fixed floating-point expression or decimal exponent expression. Example: Entering '111' is not considered as a binary number but as '111' in decimal. Entering '11E3' is not considered as a hexadecimal number but as '11000' in a decimal exponent expression.
Applicable number of characters	Up to 11 characters
Applicable range of value	Exponent expression: -1.797E+308 to -2.225E-308, 0, and 2.225E-308 to 1.797E+308 Fixed floating-point expression: -9999999999 to 99999999999 Note that entering the value, which is the upper limit display value ≤ the lower limit display value, is not applicable.

Widening/narrowing the display scale

Widen/narrow the selected trend graph in the graph area to the direction of longitudinal axis.
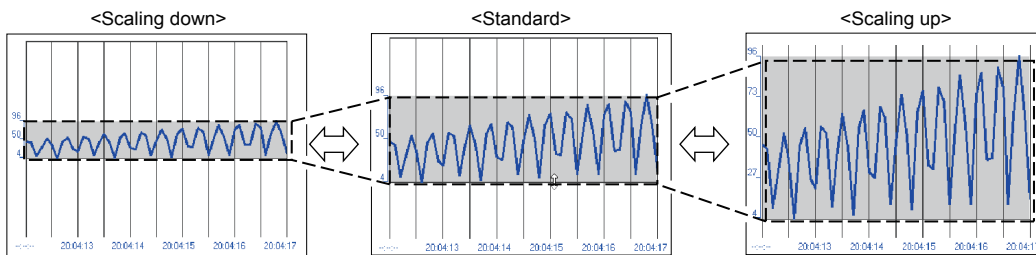
Operating procedure

Select the upper end/lower end of a trend graph with a mouse, and drag it upward/downward.

Or, select [Graph Operation] ⇨ [Adjust Scale] ⇨ [Widen Graph] (🔧)/[Narrow Graph] (🔧).

Point

> The scale can be adjusted by scrolling the mouse wheel while pressing the ⌷Alt⌷ key.
> Scrolling the mouse wheel up widens the graph, and scrolling it down narrows the graph.

Moving graph up/down/left/right

Move a trend graph displayed in the graph area up/down/left/right.

When logging data of more than one file is displayed on the same graph area, the trend graph can be moved left or right by setting the time unit to be moved.

For the methods of adding logging data, refer to the following section.

☞ Page 75 Adding/deleting data to/from graph legend area

Moving up/down
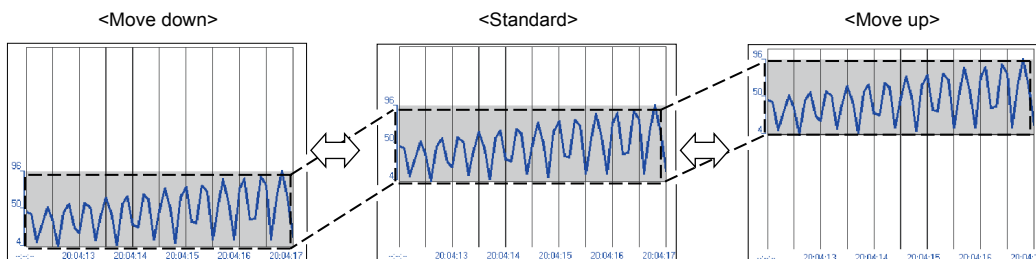
Operating procedure

Select a trend graph with a mouse and drag it upward/downward.

Or, select [Graph Operation] ⇨ [Adjust Graph Location] ⇨ [Move Up Graph] (🔧)/[Move Down Graph] (🔧).

Point

> • The graph can be moved by scrolling the mouse wheel while pressing the ⌷Shift⌷ and ⌷Alt⌷ key.
>   Scrolling the mouse wheel up moves the graph upward, and scrolling it down moves the graph downward.
> • When logging data of more than one file is displayed, all of the data in the same file can be moved up or down by dragging a graph line upward or downward with the ⌷Ctrl⌷ key pressed.

Moving left/right

When logging data of more than one file is displayed with the time interval plot display format, the graph can be moved left or right.

Operating procedure

Select a trend graph with a mouse and drag it to the left or right.

Or, select [Graph Operation] ⇨ [Adjust Graph Location] ⇨ [Move Graph to Left] (🔄)/[Move Graph to Right] (🔄).

Setting the time unit to move to the left/right

Set the time unit to move a graph to the left or right.

Operating procedure

Select a phase from 24 phases between [1ms] and [12h] from the combo box in the tool bar.

Or, select [Graph Operation] ⇨ [Adjust Graph Location] ⇨ [Horizontal Moving Quantity], and select a phase from 24 phases between [1ms] and [12h].

Expanding/reducing time scale

Expand/reduce the time scale in the graph area.

Operating procedure

Select [Graph Operation] ⇨ [Adjust Time Scale] ⇨ [Expansion Time Scale] (➕)/[Reduction Time Scale] (➖).

Point

The time scale can be adjusted by scrolling the mouse wheel while pressing the ⌈Alt⌋ key.
Scrolling the mouse wheel up expands the time scale, and scrolling it down reduces the time scale.

Displaying consecutive previous/next trend graph

Normally, one Data logging file is displayed on a historical trend window. However, data in the previous/next Data logging file can be displayed simultaneously by using this function. (Unicode text files, CSV files, and binary files)
This enables the consecutive view of divided Data logging files.
The following data are not supported by this function.
 • Data logged by Data communication
 • Data logged by Analog module
 • Data logged by Energy Measuring Unit
 • Sampling trace data
 • Simulation result of FLEXIBLE HIGH-SPEED I/O CONTROL Module Configuration tool

Precautions

Previous/next Data logging file may not be displayed if any of the operations below is performed using a Data logging file saved in a personal computer.
If the previous/next Data logging file cannot be displayed, create the same folder configuration as the one under '/LOGGING' in an SD memory card or a CompactFlash card before the operation.
 • A name of a folder or a Data logging file under the data name has been changed.
 • The previous/next Data logging file has been deleted.
 • File names of Data logging file are not in series.

8

Displaying previous graph

<Operating from the normal status>

Time axis	Data logging file configuration	Trend window

/LOGGING

/LOG01

(Earlier)

Time

00000001

00000001.CSV — File displayed before the operation

00000101.CSV

00000102.CSV ··· Previous graph

00000002

00000103.CSV

00000255.CSV — Files to be displayed after the operation

(Later)

LOG01.CSV — File sampling current data

/LOG02

<Before operation>

Data in 00000103.csv are displayed

Perform 'Show Previous Graph'

<After operation>

Data in 00000102.csv are displayed | Data in 00000103.csv are displayed

Up to two files can be displayed

<Operating from the status when the previous graph is already displayed>

Time axis	Data logging file configuration	Trend window

/LOGGING

/LOG01

00000001

00000001.CSV — File displayed before the operation

00000101.CSV ··· Previous graph

00000102.CSV

00000002

00000103.CSV

00000255.CSV — Files to be displayed after the operation

LOG01.CSV — File sampling current data

/LOG02

(Earlier) ... Time ... (Later)

<Before operation>

Data in 00000102.csv are displayed | Data in 00000103.csv are displayed

Perform 'Show Previous Graph'

<After operation>

Data in 00000101.csv are displayed | Data in 00000102.csv are displayed

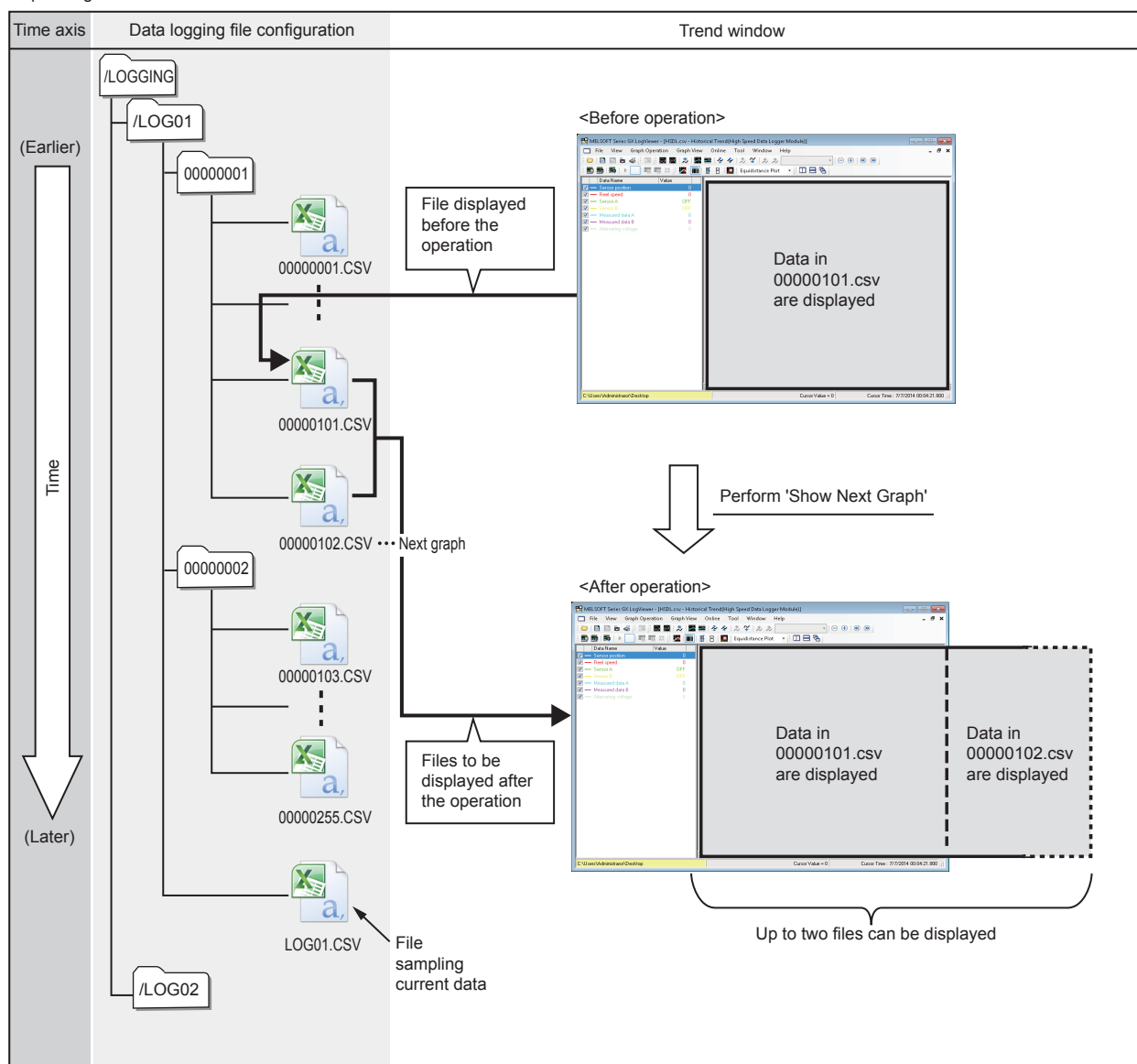Up to two files can be displayed

Operating procedure

1. Select [Graph Operation] ⇨ [Show Previous Graph] (⏪).
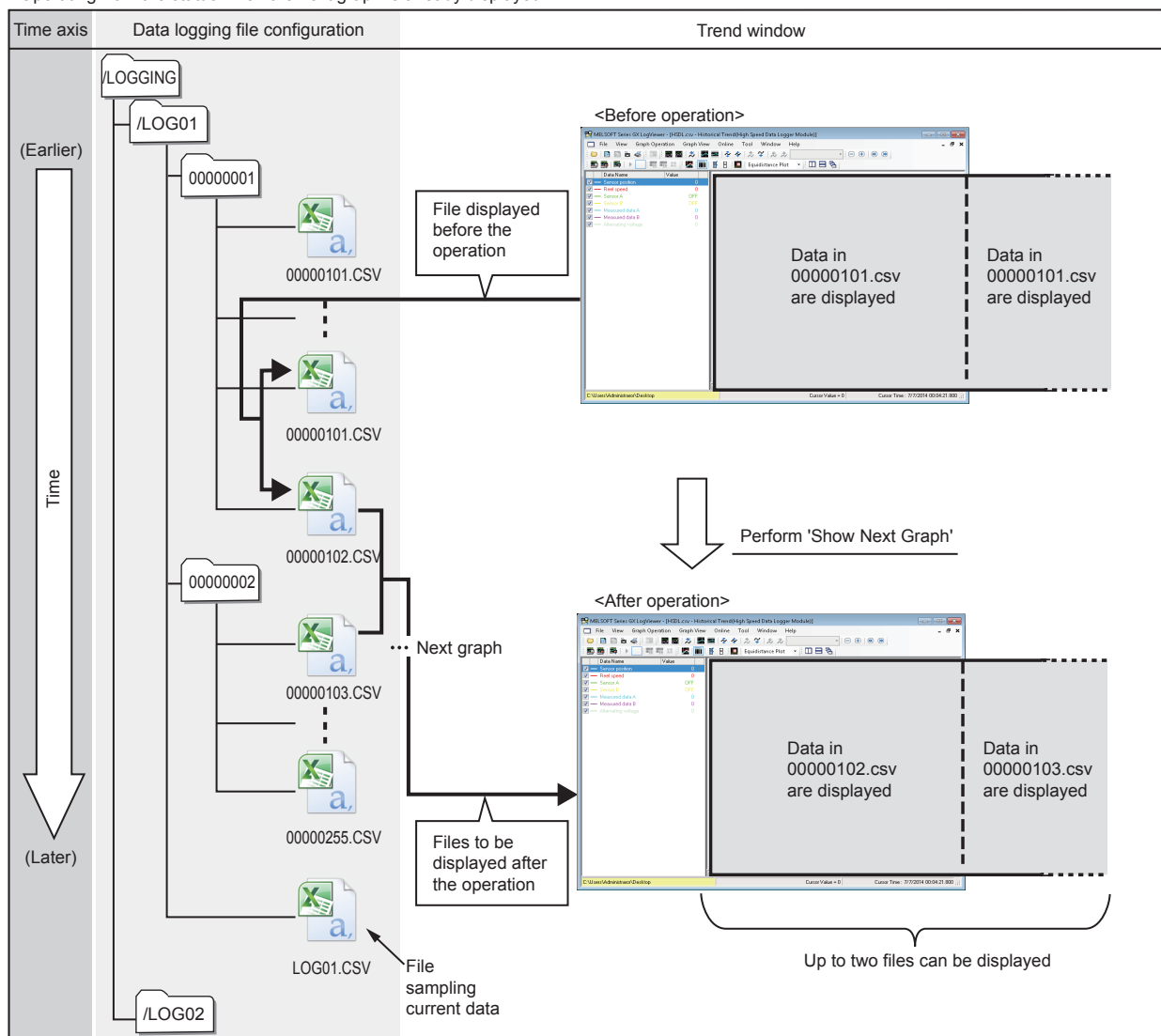
2. Click the [<<] button.

The previous graph cannot be displayed to a Data logging file of which serial number assigned to the file name is the smallest number.

8

Displaying next graph

<Operating from the normal status>

Time axis	Data logging file configuration	Trend window

/LOGGING

/LOG01

00000001

(Earlier)

00000001.CSV

File displayed before the operation

00000101.CSV

00000102.CSV ••• Next graph

00000002

00000103.CSV

Files to be displayed after the operation

00000255.CSV

LOG01.CSV

File sampling current data

/LOG02

(Later)

Time

<Before operation>

Data in 00000101.csv are displayed

Perform 'Show Next Graph'

<After operation>

Data in 00000101.csv are displayed

Data in 00000102.csv are displayed

Up to two files can be displayed

<Operating from the status when the next graph is already displayed>

Time axis	Data logging file configuration	Trend window

<Before operation>

File displayed before the operation

Data in 00000101.csv are displayed

Data in 00000101.csv are displayed

Perform 'Show Next Graph'

<After operation>

Next graph

Files to be displayed after the operation

Data in 00000102.csv are displayed

Data in 00000103.csv are displayed

Up to two files can be displayed

/LOGGING
/LOG01
00000001
00000101.CSV
00000101.CSV
00000102.CSV
00000002
00000103.CSV
00000255.CSV
LOG01.CSV

File sampling current data

/LOG02

(Earlier)

Time

(Later)

8

Operating procedure

1. Select [Graph Operation] ⇨ [Show Next Graph] (⏩).

2. Click the [>>] button.

The next graph cannot be displayed to a Data logging file (a file that is sampling the current data) of which serial number is not assigned to the file name.

8.6 Changing Display Items in Graph Area

This section explains the methods of changing the display items in the graph area.

Data on trend graphs can easily be checked by changing the display items.

> **Point**
>
> - Information of display items in a graph area (except for a language specified in the language selection setting) can be named and registered for reflecting it to other windows. (☞ Page 101 Registering and Reflecting Graphical Display Settings of Trend Windows)
> - Graph display can be set to be reflected automatically when opening a window with the same data logging setting next time. (☞ Page 103 Reflecting Graph Display Automatically When Opening File)

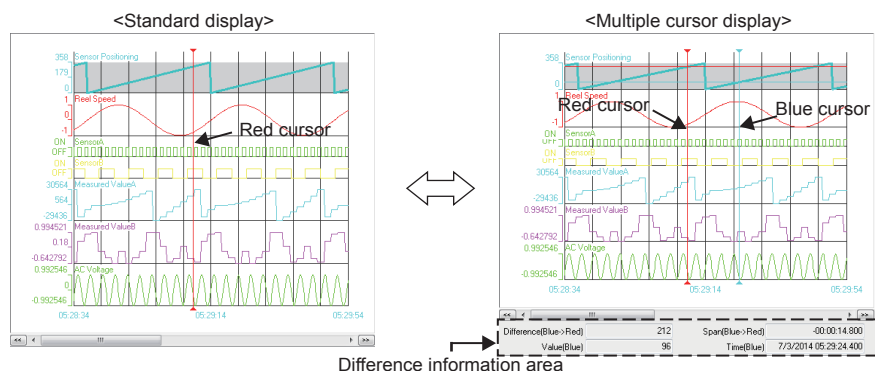## Displaying multiple cursor

Switch the number of cursors displayed on a graph area.

Only a red cursor is displayed for a standard display, and a red cursor and a blue cursor are displayed for the Multiple cursor function.

When the Multiple cursor function is activated, the difference information area is displayed.

For details on cursor operations, refer to the following section.

☞ Page 73 Moving cursors

Operating procedure

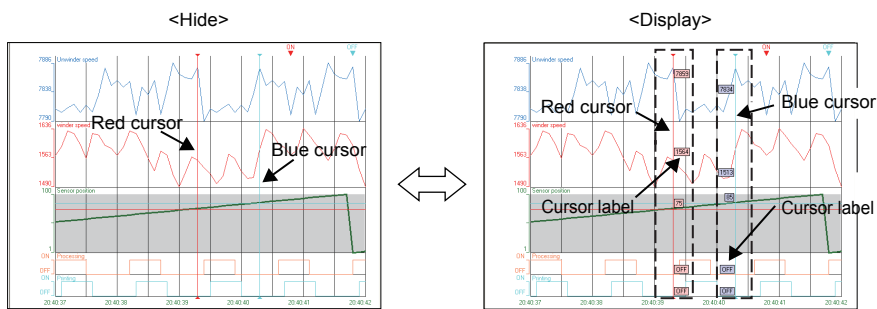Select [Graph View] ⇨ [Multiple Cursor] (🔲).

Precautions

When activating the Multiple cursor function, stop or pause the monitoring.

Displaying cursor labels

Display or hide cursor labels in the graph area.

Labels for the red cursor are displayed at the right of the cursor, and labels for the blue cursor are displayed at the left of the cursor.
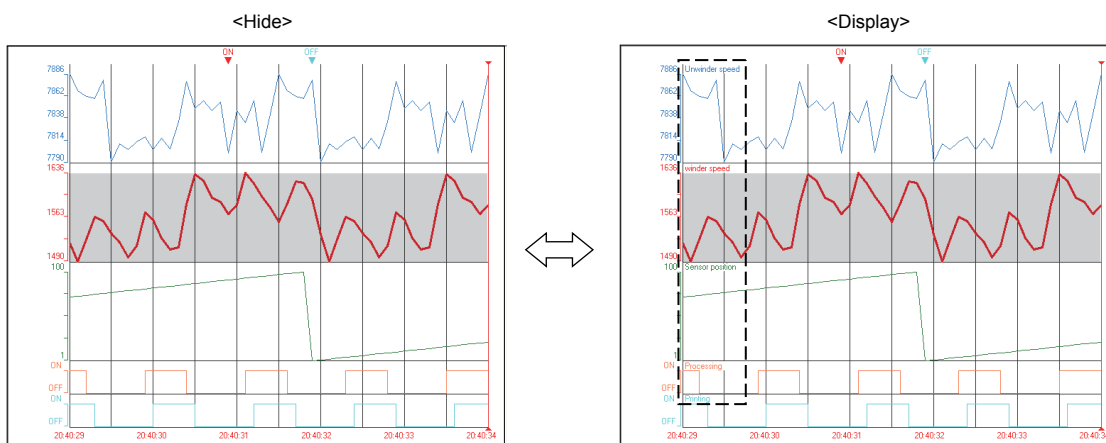

Operating procedure

Select [Graph View] ⇨ [Cursor Label] (▣).

Displaying data names

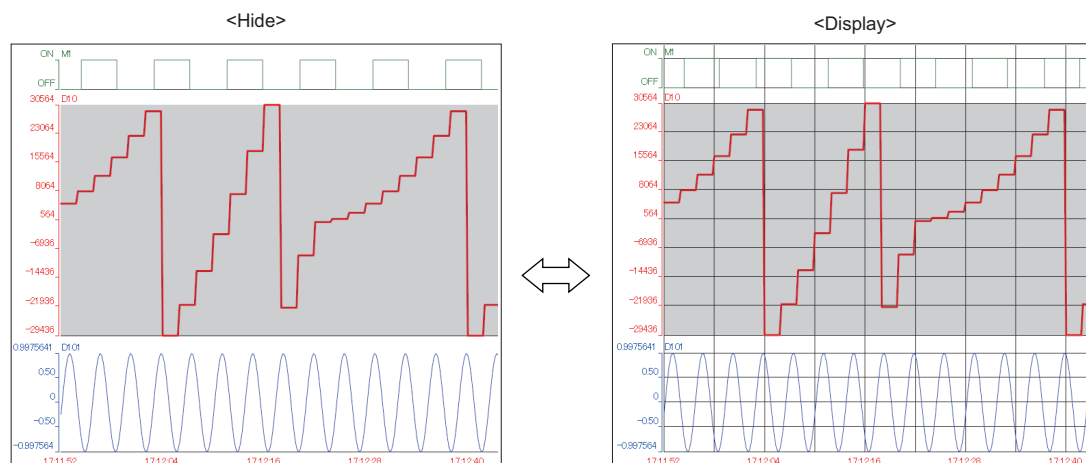Display or hide data names in the graph area.

Operating procedure

Select [Graph View] ⇨ [Data Name].

Point

When the realtime monitor window is activated, "Device/Label" is displayed as a display item instead of "Data Name".

Displaying grid

Display or hide the grid (vertical lines/horizontal lines) in the graph area.

Operating procedure

[Graph View] ⇨ [Grid] ⇨ [Vertical Line]/[Horizontal Line]

Switching graph plot format

Switch a display format displayed on a historical trend window to the equidistance plot display format or the time interval plot display format.

The equidistance plot display format is a format which displays the sampled data in an equal interval regardless of time.
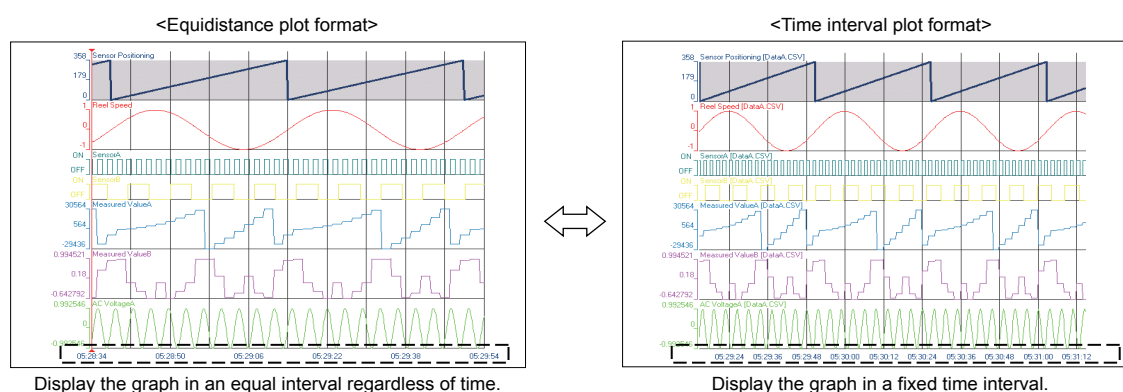
The time interval plot display format is a format which displays the graph in a fixed time interval.

When displaying logging data of more than one file on the same graph area, the time interval plot display format is applied.

Displaying data with fixed time interval allows easier comparison between multiple data.

For the methods of adding logging data, refer to the following section.

☞ Page 75 Adding/deleting data to/from graph legend area
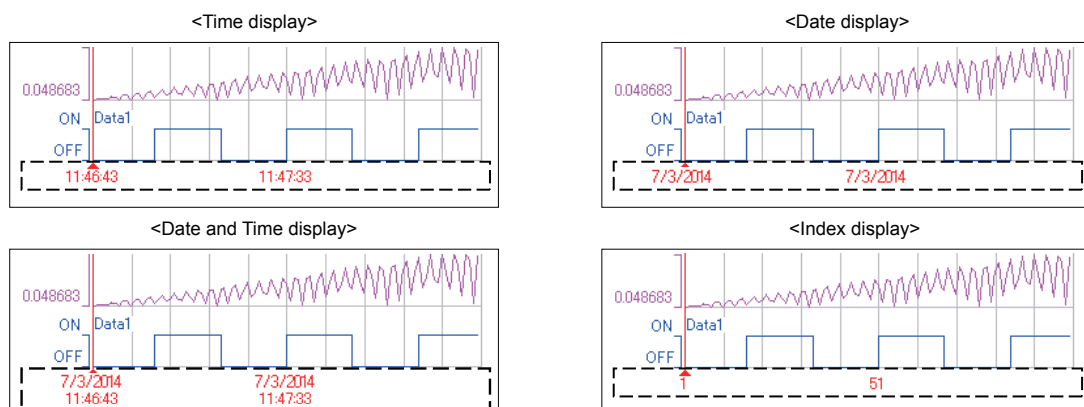

Operating procedure

Select [Equidistance Plot]/ [Time Interval Plot] from the combo box ([▾]) in the toolbar.
Or, select [Graph View] ⇨ [Plot Format] ⇨ [Equidistance Plot]/[Time Interval Plot].

Changing display of time scale labels

Change a display of time scale labels on the graph area between the time display, date display, date and time display, and index display.

Since Analog modules do not have time information in the logging data, only index display is available.

Operating procedure

Select [Graph View] ⇨ [Time Label] ⇨ [Time]/[Date]/[Date and Time]/[Index].

Precautions

A logging file, in which any of "year", "month", "day", "hour", "minute", or "second" of the data line output format (can be set with Configuration tool) is missing, is displayed with Index only. For data of which all of units following the missing unit are to be output even when any of "hour", "minute", or "second" is missing; however, the time display/date display/date and time display are available by treating the missing unit as '0'.

Optimizing the display language of data names

Optimize a language of data names displayed on a historical trend window.

Data names are displayed in a language of the characters used in a read file when displaying a Data logging file.

If characters of codes which can be used in multiple languages or characters of inapplicable languages are used for data names, those characters may be corrupted.

If characters are corrupted, optimize the display language.

Operating procedure

Select [Graph View] ⇨ [Set Language] ⇨ [Chinese Simplified]/[Chinese Traditional]/[English]/[Japanese]/[Korean]/[Unicode (UTF-8)].

8.7   Changing Graph Appearance

This section explains the methods of changing graph appearance.
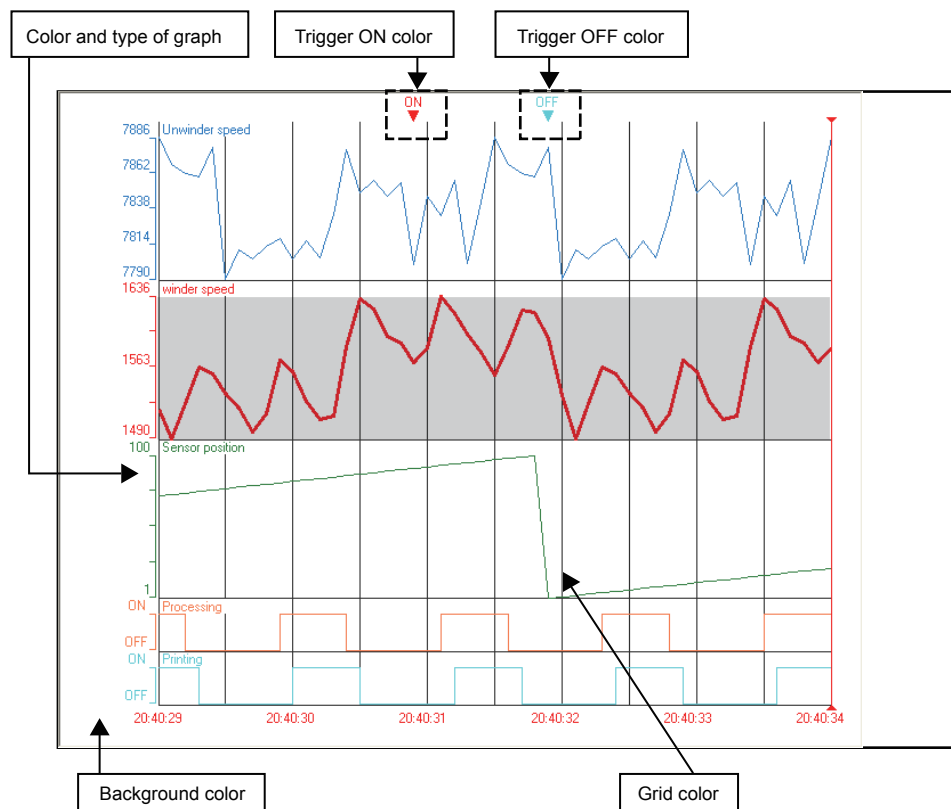
> **Point**
>
> - Graph display information can be named and registered to be reflected to other windows. (☞ Page 101 Registering and Reflecting Graphical Display Settings of Trend Windows)
> - Graph display can be set to be reflected automatically when opening a window with the same data logging setting next time. (☞ Page 103 Reflecting Graph Display Automatically When Opening File)

Changing color and type of graph

Change the settings of graphs (such as color and type), background color, and graph area (grid color, trigger ON color, trigger OFF color) displayed on the trend window.

The following figure shows the settings that can be changed. The settings are changed on the "Graph Properties" screen.

Since the settings of background color, grid color, trigger ON color and trigger OFF color are common to all trend window, any change is reflected to all the trend windows being displayed.

> **Point**
>
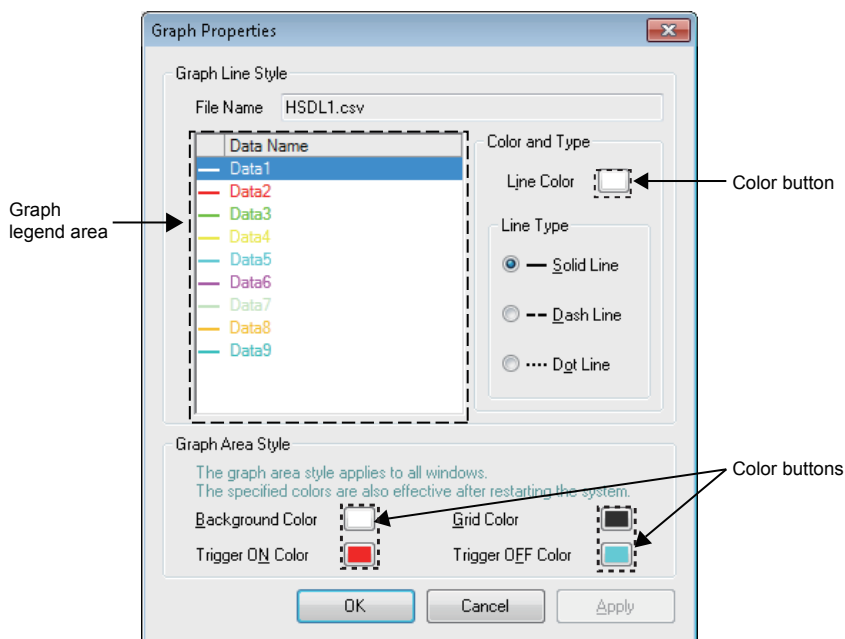> - Color and type of graph can be specified per data.
> - "Custom colors" can be used by the Graphic Properties and the Event Properties in common.
>   (☞ Page 99 Displaying Graph Properties screen)(☞ Page 122 Displaying the Event Properties screen)

Displaying Graph Properties screen

Window

Select [Graph View] ⇨ [Graph Properties].

Operating procedure

■Changing graph color

1. Select a data whose graph color to be changed from the list of graph legend area.

2. Click the color button for "Line Color".

3. Select a color from "Basic colors" or "Custom colors" on the "Color" screen, and click the [OK] button.

■Changing graph line type

1. Select a data whose graph line type to be changed from the list of the graph legend area.

2. Select a type from "Line Type", and click the [OK] button.

■Changing graph area style (background color, grid color, trigger ON color, and trigger OFF color)

1. Click the color button for the setting to be changed.

2. Select a color from "Basic colors" or "Custom colors" on the "Color" screen, and click the [OK] button.

Highlighting graph

Highlight the display area of the selected trend graph.

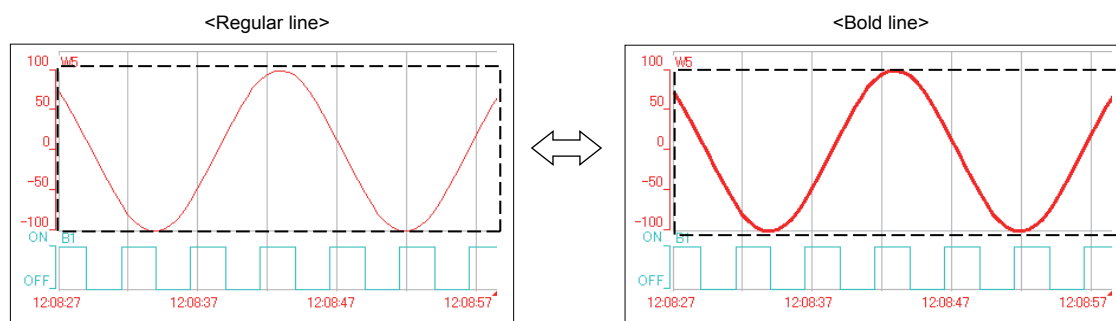The highlighted display is also reflected to a graph printed on paper.
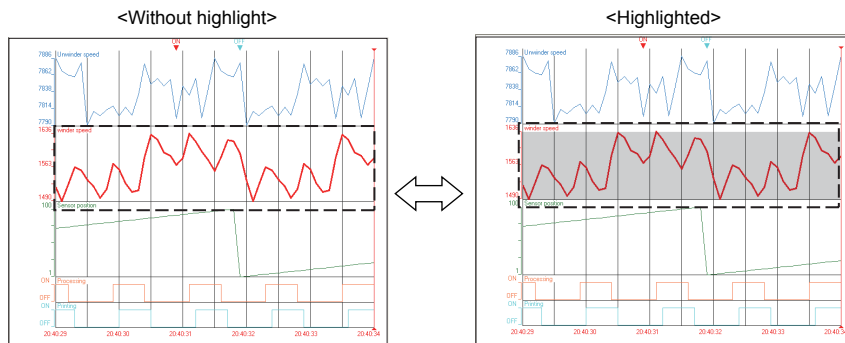
Operating procedure

Select [Graph View] ⇨ [Graph Highlight].

Thickening graph line

Thicken the line of the selected trend graph.

Operating procedure

Select [Graph View] ⇨ [Bold line].

8.8 Registering and Reflecting Graphical Display Settings of Trend Windows

By registering the display information of a graph being displayed (including graph line color/type, upper/lower limit display value, display items in graph area[*1], highlighted display, bold display, display status of graph legend area) as 'graphical display settings', it can be reflected to other trend windows.

*1 The setting information in the language selection setting is excluded. For the target items of 'graphical display settings', refer to the Point in the following sections.

Registering graphical display settings

Window

Select [Graph View] ⇨ [Register Graphical Display Settings].
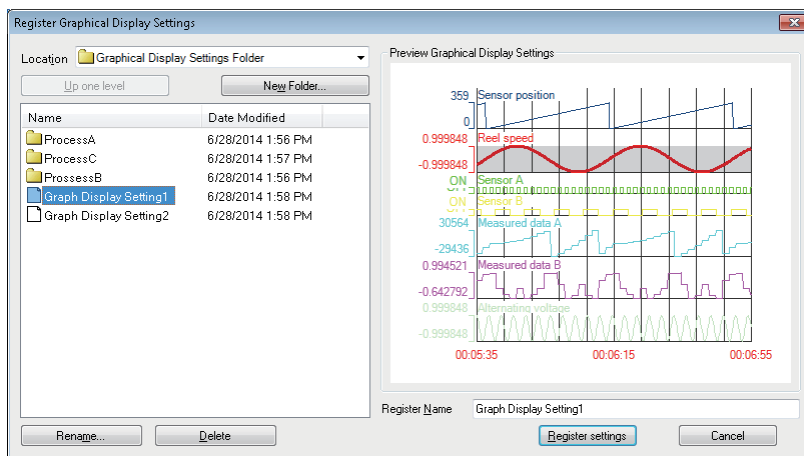
Operating procedure

Enter a name for "Register Name" and click the [Register Settings] button.

> **Point**
>
> A new folder can be created under a folder being selected on the "Register Graphical Display Settings" screen. Select the folder name and click the [New Folder] button.

Operating graphical display settings

Window

Select [Graph View] ⇨ [Operate Graphical Display Settings].

Operating procedure

■Reflecting registered graphical display settings to another trend window
Select a display setting to be reflected, and click the [Reflect settings] button.

■Deleting or renaming registered graphical display settings
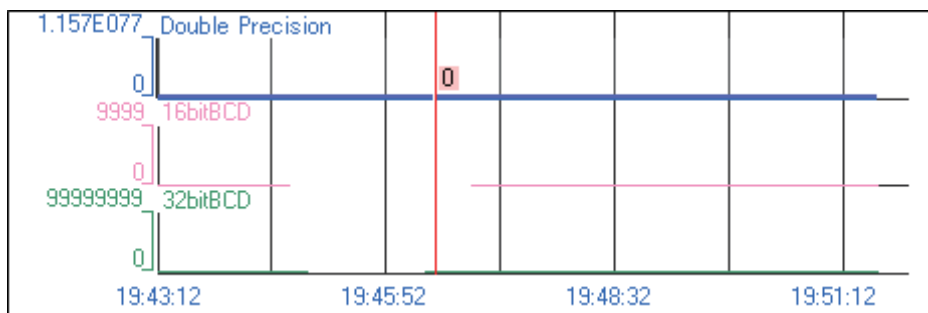Select a display setting to be renamed/deleted, and click the [Rename] button or the [Delete] button.

Importing/Exporting graphical display settings

- Importing files: All information included in an export file is imported. The Import operation discards a current window setting, and then imports a file.
- Exporting files: The folder hierarchy information is also saved in an export file.

Window

Select [File] ⇨ [Import and Export].
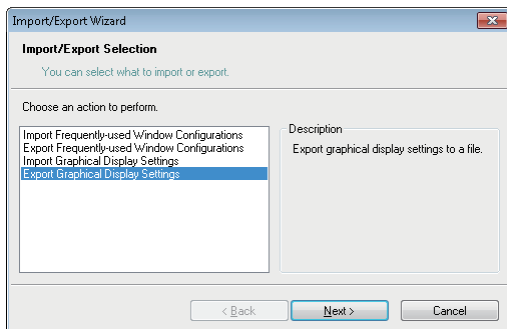
Operating procedure

1. Select "Import Graphical Display Settings"/ "Export Graphical Display Settings", and click the [Next] button.

2. Specify a file path and a file name of the data to be imported/exported, and click the [Next] button.

3. Click the [Finish] button.

8.9 Reflecting Graph Display Automatically When Opening File

The auto reflect function stores the display information of a graph being displayed (including graph line color/type, upper/lower limit display value, display items in graph area[*1], highlighted display, bold display, and display status of graph legend area) for each data logging setting, and enables it to be reflected to a graph automatically when opening the trend window next time. Using this function saves time to configure the setting each time when displaying a graph with the same data logging setting as same as last time.

*1 The setting information in the language selection setting is excluded. For the target items of 'graphical display settings', refer to the Point in the following sections.
  ☞ Page 76 Operating Trend Graphs
  ☞ Page 94 Changing Display Items in Graph Area
  ☞ Page 98 Changing Graph Appearance

Operating procedure

Select [Graph View] ⇨ [Set Graph View by the Auto Reflect Function].

Point

To restore the settings to the initial settings, initialize the graph display first, then set the auto reflect function again.

8.10 Initializing Graph Display

This section explains how to restore the changed graph display to the initial state (the state in which graph appearance such as the color has not been changed).

Operating procedure

1. Select a trend window to be initialized. (Activate it.)

2. Select [Graph View] ⇨ [Initialize View].

Point

Even if initializing the graph display to which the auto reflect function has already been set, the graph display set in the auto reflect function is applied when opening the trend window with the same data logging setting next time.

8.11 Graph Display for Missing Data or Time Reversed Data

RCPU ┊ R Analog ⊗ ┊ QnUDVCPU ┊ High Speed Data Logger ┊ High Speed Data Communication ┊ Q Analog ⊗ ┊ LCPU ┊ L Analog ⊗ ┊ BOX Data Logger ┊ Others ⊗

This section explains the graph display when the data is missing, or the time information is reversed.

Graph display for missing data

The missing data is displayed as two vertical dashed-dotted lines.

The equidistance plot display format: the time scale label is displayed as "**:**:**".

The time interval plot display format: the missing period is displayed as gray.

For more details on missing data, refer to manuals for respective modules.

<When displaying with equidistance plot format>

<When displaying with time interval plot format>
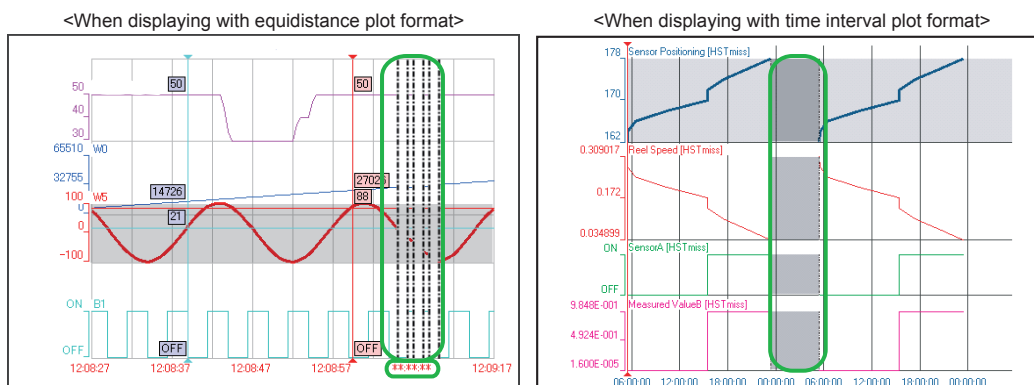
■Displaying value in the graph legend area for missing data

When the cursor is placed between the two dashed-dotted lines for missing data, "---" is displayed for the value on the graph legend area.

■Displaying cursor value and difference information for missing data

When the cursor is placed between the two dashed-dotted lines for missing data, the cursor value and the cursor time on the status bar are displayed as follows.

 • Cursor Value:---
 • Cursor Time:****/**/** **:**:**.***

For the Multiple cursor display, when the red cursor or blue cursor is placed at the missing data area, the difference and span fields in the difference information area are displayed as follows.

 • Difference:---
 • Span:**:**:**.***,*** (For CPU module) **:**:**.***.*** (For Data logger/Data communication)

Graph display for reversed data

When displaying a graph with the time interval plot display format, the reversed period is displayed as oblique stripe, in case data time is reversed owing to the time change of a module.
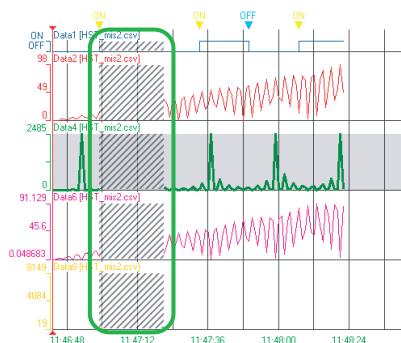
8.12 Displaying Abnormal Graphs

RCPU | R Analog ✕ | QnUDVCPU | High Speed Data Logger | High Speed Data Communication | Q Analog ✕ | LCPU | L Analog ✕ | BOX Data Logger | Others ✕

An abnormal graph is displayed when the value of data is a nonnumeric or infinite value.

When a float (single precision, double precision) is expressed as a numeric value, a bit string that is not recognized as a numeric value is handled as a nonnumeric value.

By the scaling function of Data logger/Data communication, values of data may become plus infinite/minus infinite values.

Graph display on trend window

- The graph is not displayed while nonnumeric values continues.
- The cursor labels of the graph are not displayed while nonnumeric values continues.
- For the plus infinite value, the graph attaches to the upper limit display value.
- For the minus infinite value, the graph attaches to the lower limit display value.
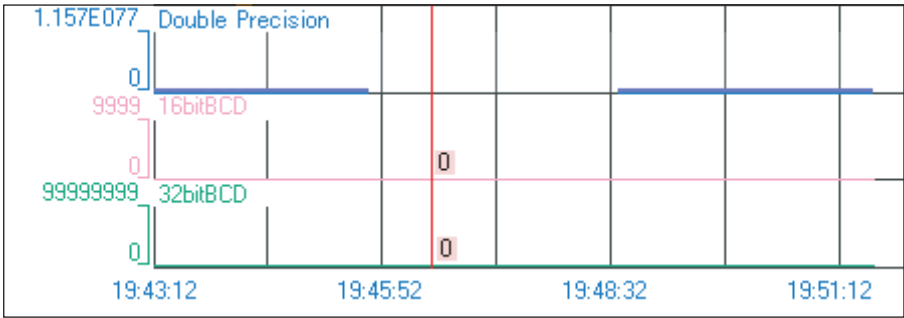
Cursor values displayed in the graph legend area

- Nonnumeric value: NaN
- Plus infinite value: +Inf
- Minus infinite value: -Inf

Cursor value and difference information displayed on status bar of trend window

The cursor value on the status bar, and "Difference (Blue → Red)" and "Value (Blue)" in the difference information area are also displayed as follows:

- Nonnumeric value: NaN
- Plus infinite value: +Inf
- Minus infinite value: -Inf

8.13 Handling BCD Type Incorrect Values

RCPU | R Analog ✕ | QnUDVCPU | High Speed Data Logger | High Speed Data Communication | Q Analog ✕ | LCPU ✕ | L Analog ✕ | BOX Data Logger | Others ✕

When the values of 16 bit BCD type integer and 32 bit BCD type integer exceed the maximum value, they are handled as incorrect values.

The following explains the expression of incorrect values on the trend window.

Graph display on the trend window

- The graph is not displayed while incorrect values continues.
- The cursor labels of the graph is not displayed while incorrect values continues.
- For the Multiple cursor display, the horizontal cursor that indicates the intersection with the graph is not displayed.
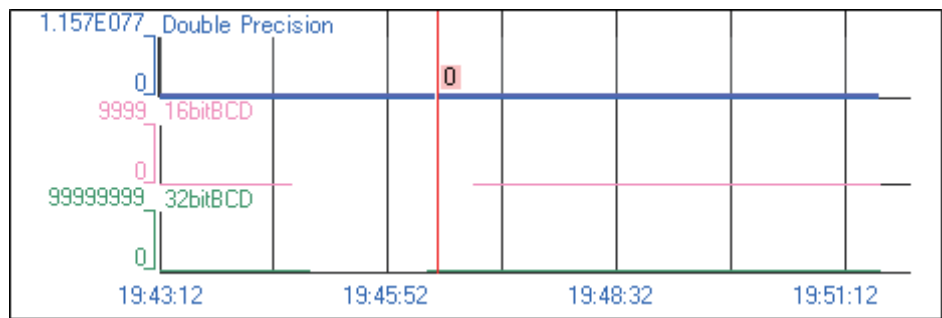
Cursor values displayed in the graph legend area

When the cursor is placed at the plot of incorrect values, "---" is displayed for values in the graph legend area.

Cursor value and difference information displayed on status bar of trend window

When the cursor is placed at the plot of incorrect values, "---" is displayed for the cursor value field on the status bar.

"---" is displayed for the cursor value field on the status bar for the blue cursor for the Multiple cursor display as well.

"---" is also displayed for the difference field when the red cursor/blue cursor is placed at the incorrect value.

9 USING EVENT MONITORING FUNCTION

| RCPU | R Analog | QnUDVCPU | High Speed Data Logger | High Speed Data Communication | Q Analog | LCPU | L Analog | BOX Data Logger | Others |

9.1 Overview

This function is for displaying events sampled by the event logging function of Data logger in a list format.

The following display methods are available in the event monitoring function.

- Historical event list
- Realtime event list
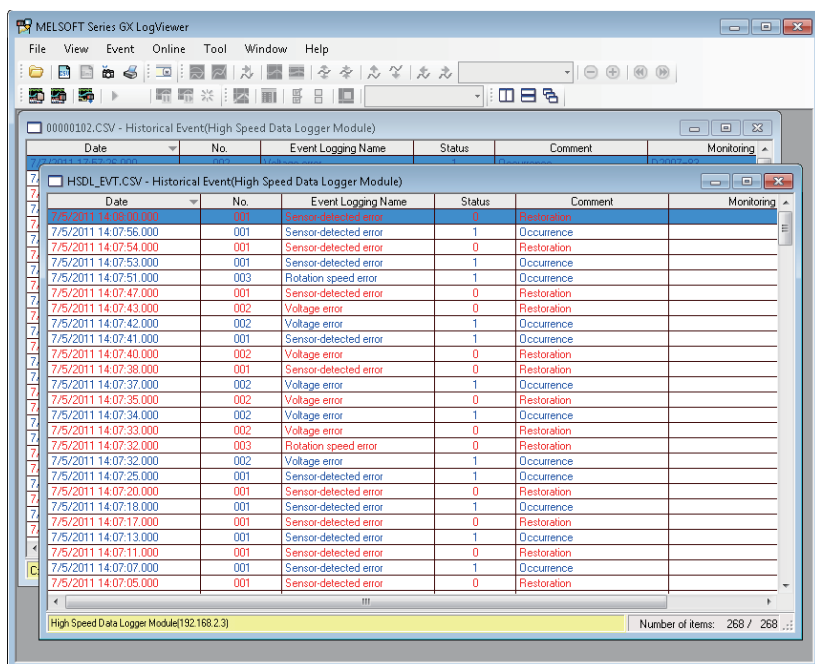
Modules supporting the Historical event list/Realtime event list are shown below.

○: Supported, ×: Not supported

Series	Supported module	Historical event list	Realtime event list
MELSEC iQ-R series	RCPU	×	×
	Analog module	×	×
MELSEC-Q series	QnUDVCPU	×	×
	Analog module	×	×
	High Speed Data Logger Module	○	○
	High Speed Data Communication Module	×	×
MELSEC-L series	LCPU	×	×
	Analog module	×	×
Others	BOX Data Logger	○	○

Historical event list

RCPU ✕ | R Analog ✕ | QnUDVCPU ✕ | **High Speed Data Logger** | High Speed Data Communication ✕ | Q Analog ✕ | LCPU ✕ | L Analog ✕ | **BOX Data Logger** | Others ✕

Event logging files saved in a CompactFlash card in Data logger are displayed.

Saved past events can be confirmed anytime.
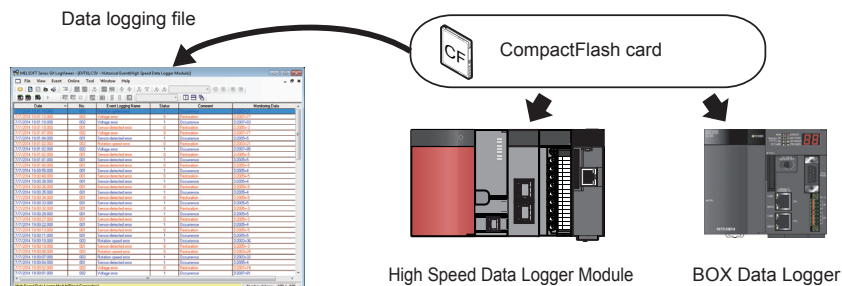
■Displaying data sampled by Data logger

Data logging file

CompactFlash card

High Speed Data Logger Module

BOX Data Logger

■Displaying data saved in a personal computer or in a memory medium connected to a personal computer
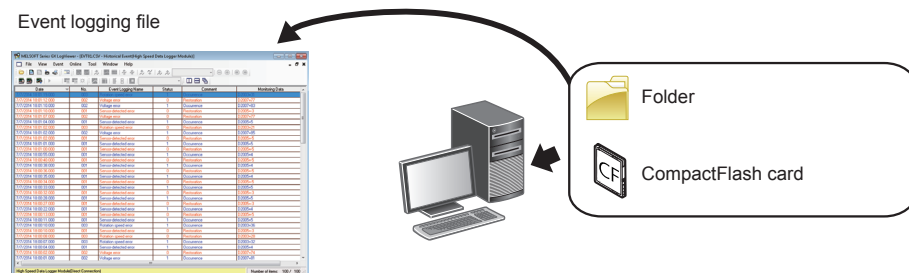
Event logging file

Folder

CompactFlash card

Realtime event list

RCPU ✕ | R Analog ✕ | QnUDVCPU ✕ | **High Speed Data Logger** | High Speed Data Communication ✕ | Q Analog ✕ | LCPU ✕ | L Analog ✕ | **BOX Data Logger** | Others ✕

The most recent events sampled by the Data logger are displayed.

Events are constantly updated so that the event history from the start of monitoring up to the present time can be checked.

To display the Realtime event list, a personal computer and a Data logger need to be connected to each other online.

Event logging data

Samples events in real time, and displays them.

BOX Data Logger

High Speed Data Logger Module
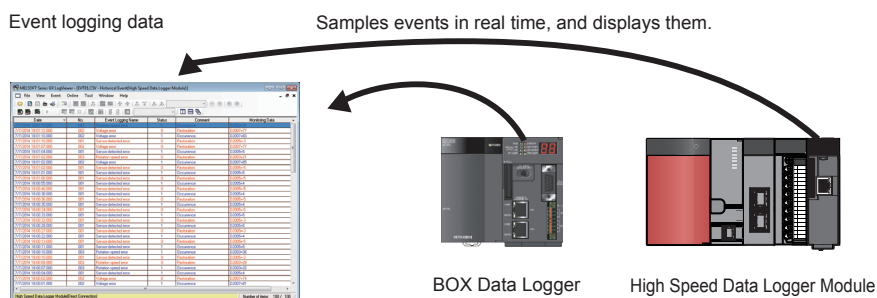
9.2 Screen Configuration

This section explains the screen configuration of event windows.

Event window
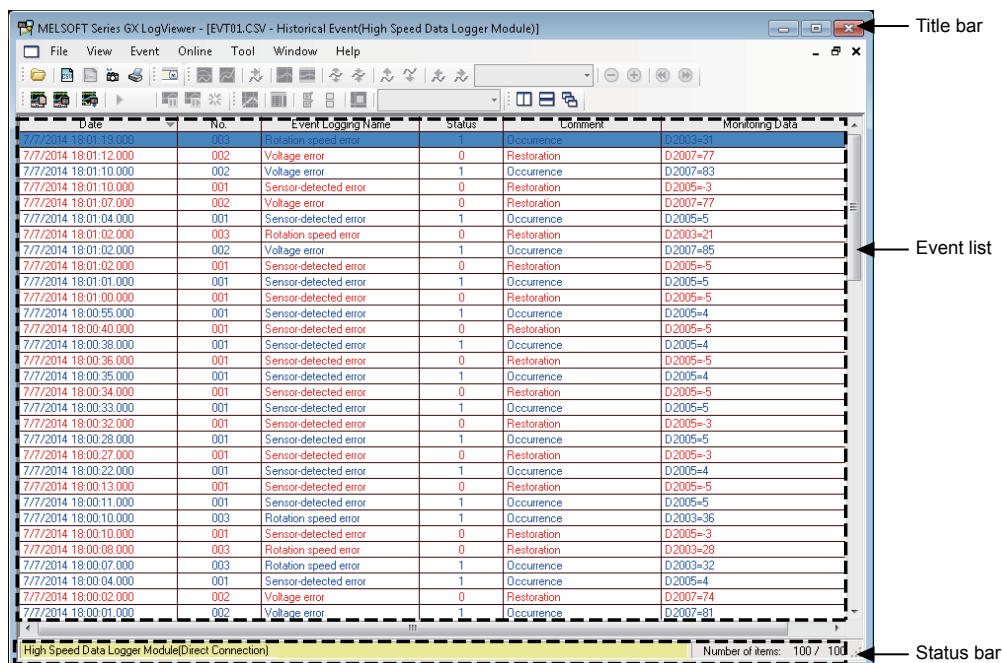
Up to 2000 realtime events of data is displayed.

Displayed items

Item	Description	Reference
Title bar	• Historical event list: logging file names ─ Historical Event (module name) • Realtime event list: logging setting name ─ Realtime Event (module name) [monitoring status]	─
Event list	Displays a list of events occurred.	Page 110 Event list
Status bar	Displays a source from which an Event logging file is obtained and the communication status with Data logger.	Page 111 Status bar

Event list

← Filter row

Displayed items

Item	Description	Reference
Date[*1]	Displays the day and time of occurrence/restoration of an event.	—
No. Event Logging Name	Displays an event logging name and its number set with High Speed Data Logger Module Configuration Tool and BOX Data Logger Configuration Tool.	—
Status	Displays occurrence/restoration with the following values. • 1: Occurrence • 0: Restoration	—
Comment	Displays an occurrence comment/restoration comment.	—
Monitoring Data	Displays a name and value of monitoring data in the following format. (Event logging name) = (Event value); (Event logging name) = (Event value); to (Event logging name) = (Event value)	—
Filter row	Specify a filtering condition.	Page 114 Displaying only events that meet specific conditions (Filtering)

*1 Since the date and time in the "Date" column depends on the time setting for CPU module, they may be different from the time on the personal computer in use.

Status bar

<For Historical event (sorting)>

| |IIIII Now Sorting... | C:\High Speed Data Logger | | Number of items: 1,000 / 1,000 |
(1)   (2)   (4)

<For Realtime event>

| High Speed Data Logger Module(192.168.3.3) | Online | Number of items: 7 / 7 |
(2)   (3)   (4)

Displayed items

Item	Description
(1) Sorting/filtering performance status	Displays the performance status while the Sorting/Filtering function is performed.
(2) Source to obtain Event logging file and file type	Displays the source and file type of the Event logging file being displayed with respective characters and colors.

	Displayed characters
	■Historical event list
	Displays the source to obtain the Event logging file being displayed.
	 • Connecting to High Speed Data Logger Module:
	  High Speed Data Logger Module (IP address or "Direct Connection"):/file path
	 • Connecting to BOX Data Logger:
	  BOX Data Logger (IP address or "Direct Connection"):/file pass
	 • A data logging file is saved in a personal computer or a memory medium connected to it:
	  File path
	■Realtime event list
	Displays an IP address of Data logger being communicated with, or "Direct Connection".

	Background color | Logging file type	Background color | |---|---| | High Speed Data Logger Module | Light yellow | | BOX Data Logger | Lime |
(3) Communication status	Displays "Online" or "Offline". (For the Realtime event list only)
(4) Number of items	Displays the number of events displayed in the event list in the following format. Number of items: (number of items being displayed)/(total number of events)

9.3 Displaying Event List

This section explains how to display events sampled by Data logger in the event list.

The total number of records that can be displayed on a trend graph and in an event list is 1000001.

☞ Page 112 Displaying logged events (Historical event list)

☞ Page 113 Displaying ongoing events (Realtime event list)

☞ Page 113 Operating Realtime event list monitoring status

Displaying logged events (Historical event list)

~~RCPU~~ ~~R Analog~~ ~~QnUDVCPU~~ **High Speed Data Logger** High Speed Data Communication ~~Q Analog~~ ~~LCPU~~ ~~L Analog~~ **BOX Data Logger** ~~Others~~

Display the specified file saved in a module or a memory medium in the event list.

Saved file	Description
Logging file saved with the event logging function of Data logger	Display the Event logging file saved in a CompactFlash card with the event logging function of Data logger in the Historical event list.
Event logging files saved in a personal computer	Display Event logging file saved in a personal computer or a memory medium connected to it in the Historical event list. For the method of saving logging file to a personal computer or a memory medium, refer to the following chapter. ☞ Page 123 SAVING LOGGING FILES TO PERSONAL COMPUTER

Operating procedure

■Displaying logging files saved with the event logging function of Data logger

1. Select [Online] ⇨ [Open Logging File] (▨).

2. Select "High Speed Data Logger Module" or "BOX Data Logger" on the "Connection Destination" screen.

3. Specify the module to be connected and its route on the "Transfer Setup" screen.

4. Select an Event logging file (*.csv, or *.bin) from the list on the "File Browser" screen, and click the [Open File] button. (More than one file cannot be selected.)

■Displaying Event logging files saved in a personal computer

1. Select [File] ⇨ [Open] (📁).

2. Drag and drop the Event logging file to the main widow. (Example: Displaying "EVT02.CSV" on the desktop)

Displaying ongoing events (Realtime event list)

~~RCPU~~ ~~R Analog~~ ~~QnUDVCPU~~ **High Speed Data Logger** High Speed Data Communication ~~Q Analog~~ ~~LCPU~~ ~~L Analog~~ **BOX Data Logger** ~~Others~~
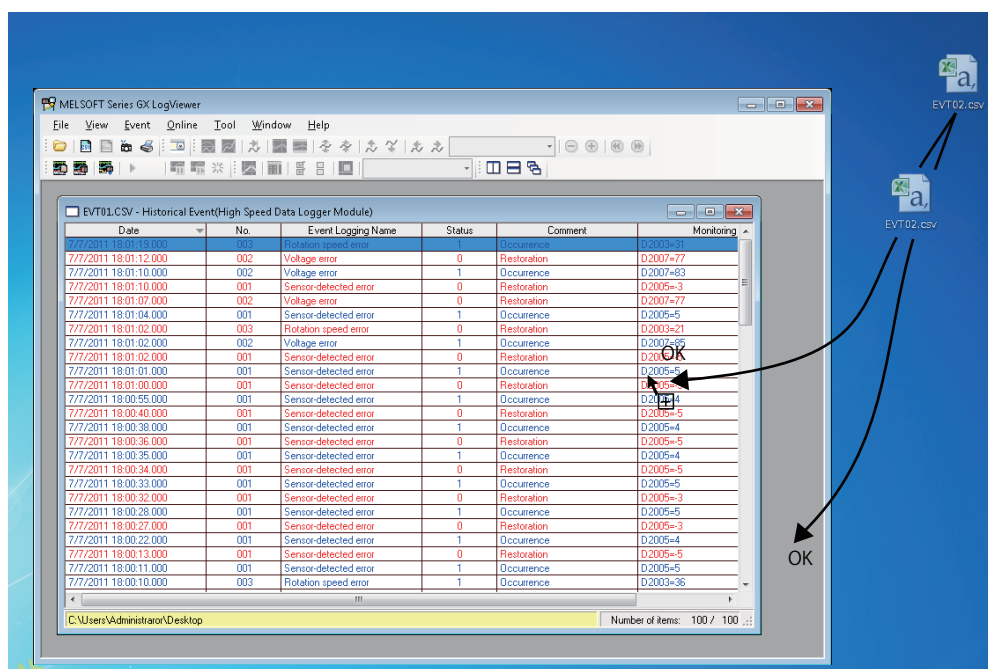
Display the specified event logging settings of a module in the event list.

Operating procedure

1. Select [Online] ⇨ [Realtime Monitor] (📟).

2. Select "High Speed Data Logger Module" or "BOX Data Logger" on the "Transfer Setup" screen.

3. Click the [Event Logging] tab on the "Select Logging Setting" screen.

4. Select a event logging setting to be set from the list, and click the [Open] button.

Operating Realtime event list monitoring status

~~RCPU~~ ~~R Analog~~ ~~QnUDVCPU~~ **High Speed Data Logger** High Speed Data Communication ~~Q Analog~~ ~~LCPU~~ ~~L Analog~~ **BOX Data Logger** ~~Others~~

Change the monitoring status on the Realtime event list.

Operating procedure

■Starting monitoring
• Select [Online] ⇨ [Begin Monitor] (▶).
This operation starts the communication with a module, and turns the monitoring status from Stop to Run.

■Stopping monitoring
• Select [Online] ⇨ [End Monitor] (■).
This operation disconnects the communication with a module, and stops updating the event list.

9.4 Operating Event List

The following functions are available to display the event list depending on the intended purpose.

Displaying only events that meet specific conditions (Filtering)

Display events displayed in the event list according to the specific conditions (filtering condition) by each column.

When multiple conditions are specified, only events that meet all of the conditions are displayed in the event list.

A new event which occurs after filtering is displayed in an event list only if it matches the filtering conditions.

Filtering is executed with not perfect match but partial match of a string specified in a cell of the filter row.

Ex.

Specifying 'Voltage error' as a filtering condition for the "Event Logging Name" column.

<Before filtering>

Date	No.	Event Logging Name	Status	Comment	Monitoring Data
7/7/2011 18:01:19.000	003	Rotation speed error	1	Occurrence	D2003=31
7/7/2011 18:01:12.000	002	Voltage error	0	Restoration	D2007=77
7/7/2011 18:01:11.000	002	Voltage error	1	Occurrence	D2007=53
7/7/2011 18:01:10.000	001	Sensor-detected error	0	Restoration	D2005=-3
7/7/2011 18:01:07.000	002	Voltage error	0	Restoration	D2007=77
7/7/2011 18:01:04.000	001	Sensor-detected error	1	Occurrence	D2005=5
7/7/2011 18:01:02.000	003	Rotation speed error	0	Restoration	D2003=21
7/7/2011 18:01:02.000	002	Voltage error	1	Occurrence	D2007=85
7/7/2011 18:01:02.000	001	Sensor-detected error	0	Restoration	D2005=-5
7/7/2011 18:01:01.000	001	Sensor-detected error	1	Occurrence	D2005=5
7/7/2011 18:01:00.000	001	Sensor-detected error	0	Restoration	D2005=-5

<After filtering>

Date	No.	Event Logging Name	Status	Comment	Monitoring Data
		Voltage error			
7/7/2011 18:01:12.000	002	Voltage error	0	Restoration	D2007=77
7/7/2011 18:01:10.000	002	Voltage error	1	Occurrence	D2007=83
7/7/2011 18:01:07.000	002	Voltage error	0	Restoration	D2007=77
7/7/2011 18:01:02.000	002	Voltage error	1	Occurrence	D2007=85
7/7/2011 18:00:02.000	002	Voltage error	0	Restoration	D2007=74
7/7/2011 18:00:01.000	002	Voltage error	1	Occurrence	D2007=81
7/7/2011 18:00:00.000	002	Voltage error	0	Restoration	D2007=73
7/7/2011 17:59:59.000	002	Voltage error	1	Occurrence	D2007=81
7/7/2011 17:59:55.000	002	Voltage error	0	Restoration	D2007=79
7/7/2011 17:59:54.000	002	Voltage error	1	Occurrence	D2007=82

Operating procedure

1. Select [Event] ⇨ [Filter] (▣).

2. Set a filtering condition to the filter row.

■**Filtering by "Date"**

1. Select "Enable Filter" on the "Filter Period Settings" screen.

2. Select the dates for "Filtering Begin Date" and "Filtering End Date" [*1], and click the [OK] button.

*1 Without specifying "Filtering Begin Date", all of events older than date and time specified in "Filtering End Date" are displayed. Without specifying "Filtering End Date", all of events newer than date and time specified in "Filtering Begin Date" are displayed.

■**Filtering by an item selected from a list box**

1. Click a cell in the filter row.

2. From the list box, select an item to filter events by. (List box selection is not available in the "Monitoring Data" column.)

■**Filtering by an item input directly**

1. Click a cell in the filter row, and enter a filtering condition directly.

2. Press the ⌨Enter key.

■**Clearing filtering conditions**

Perform any of the operations below:

- Select "Disable Filter" on the "Filter Period Settings" screen.
- Select "(Empty)" in a list box.
- Clear a cell of the filter row.
- Hide the filter row.

Sorting events (Sorting)

Sort events being displayed in the event list in ascending order (▲) or descending order (▼) by the value of each column.

Events which occurred after the sort are inserted to the list in a status maintaining the sorting order.

Ex.

Sorting "Event Logging Name" in ascending order (▲)

\<Before sorting\>

Date	No.	Event Logging Name	Status	Comment	Monitoring Data
7/7/2011 18:01:19.000	003	Rotation speed error	1	Occurrence	D2003=31
7/7/2011 18:01:12.000	002	Voltage error	0	Restoration	D2007=77
7/7/2011 18:01:10.000	001	Sensor-detected error	0	Restoration	D2005=-3
7/7/2011 18:01:10.000	002	Voltage error	1	Occurrence	D2007=83
7/7/2011 18:01:07.000	002	Voltage error	0	Restoration	D2007=77
7/7/2011 18:01:04.000	001	Sensor-detected error	1	Occurrence	D2005=5
7/7/2011 18:01:02.000	001	Sensor-detected error	0	Restoration	D2005=-5
7/7/2011 18:01:02.000	002	Voltage error	1	Occurrence	D2007=85
7/7/2011 18:01:02.000	003	Rotation speed error	0	Restoration	D2003=21
7/7/2011 18:01:01.000	001	Sensor-detected error	1	Occurrence	D2005=5

\<After sorting\>

Date	No.	Event Logging Name	Status	Comment	Monitoring Data
7/7/2011 18:01:19.000	003	Rotation speed error	1	Occurrence	D2003=31
7/7/2011 18:01:02.000	003	Rotation speed error	0	Restoration	D2003=21
7/7/2011 18:00:10.000	003	Rotation speed error	1	Occurrence	D2003=36
7/7/2011 18:00:08.000	003	Rotation speed error	0	Restoration	D2003=28
7/7/2011 18:00:07.000	003	Rotation speed error	1	Occurrence	D2003=32
7/7/2011 17:59:50.000	003	Rotation speed error	0	Restoration	D2003=18
7/7/2011 17:59:02.000	003	Rotation speed error	1	Occurrence	D2003=37
7/7/2011 18:01:10.000	001	Sensor-detected error	0	Restoration	D2005=-3
7/7/2011 18:01:04.000	001	Sensor-detected error	1	Occurrence	D2005=5
7/7/2011 18:01:02.000	001	Sensor-detected error	0	Restoration	D2005=-5

Operating procedure

Select [Event] ⇨ [Sort by] ⇨ [Date]/[No.]/[Event Logging Name]/[Status]/[Comment]/[Monitoring Data].

Or, click the item name displayed on the top of each column.

Optimizing the display language of event logging names and comments

Optimize a language of event logging names and comments displayed on a historical event window.

Event logging names and comments are displayed in a language of the characters used in a read file when displaying an Event logging file. If characters of codes which can be used in multiple languages or characters of inapplicable languages are used for data names, those characters may be corrupted.

If characters are corrupted, optimize the display language.

Operating procedure

Select [Event] ⇨ [Set Language] ⇨ [Chinese Simplified]/[Chinese Traditional]/[English]/[Japanese]/[Korean]/[Unicode(UTF-8)].

Precautions

The filtering needs to be disabled when switching the language.
Sorting is cleared when switching the language while events have been sorted.

Displaying consecutive previous/next event

Normally, one Event logging file is displayed on a historical event window. However, data in the previous/next Event logging file can be displayed simultaneously by using this function. (CSV files and binary files)
This function enables the consecutive view of divided Event logging files.

Precautions

Previous/next Event logging file may not be displayed if any of the operations below is performed using an Event logging file saved in a personal computer.
If the previous/next Event logging file cannot be displayed, create the same folder configuration as the one under "/EVENT" in a CompactFlash card before operating.

- A name of a folder or an Event logging file following the name has been changed.
- The previous/next Event logging file has been deleted.
- File names of Event logging files are not in series.

Displaying previous event

<Operating from the normal status>

<Operating from the status when the previous event logging file is already displayed>

Time axis	Event logging file configuration	Event window
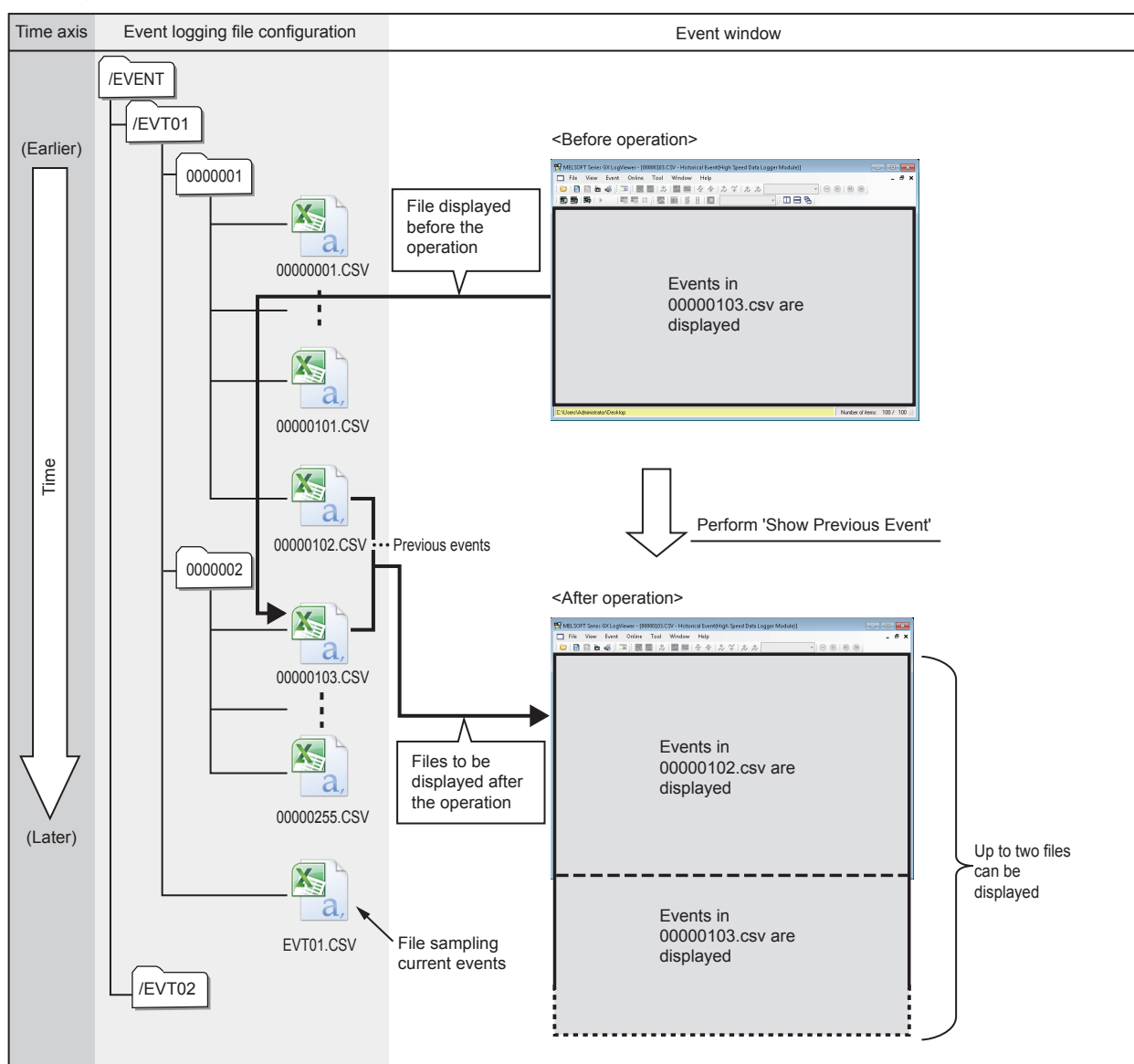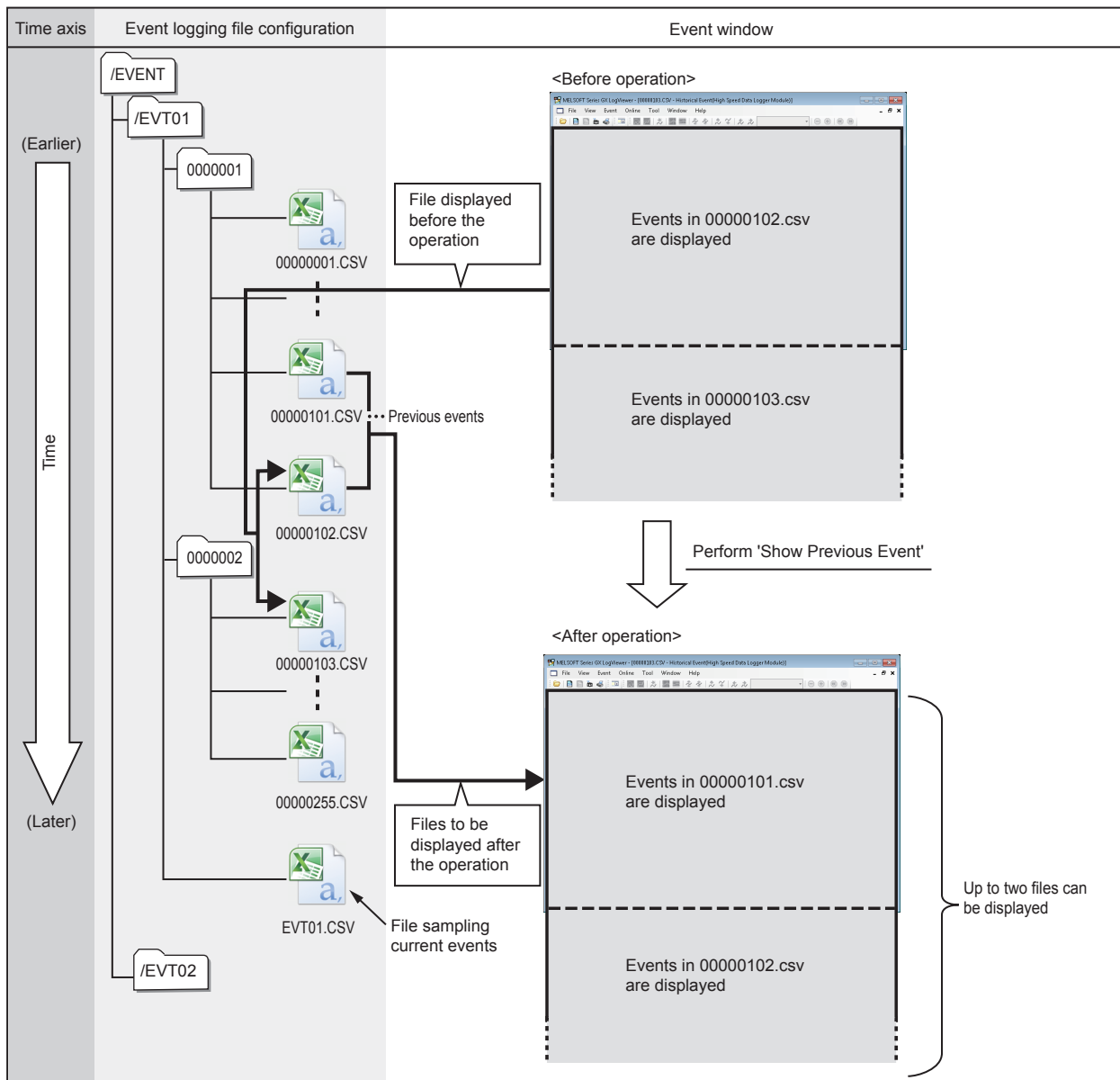
Operating procedure

Select [Event] ⇨[Show Previous Event].
• The previous event cannot be displayed to an Event logging file of which serial number assigned to the file name is the smallest number.

Displaying next event

<Operating from the normal status>

<Operating from the status when the next event logging file is already displayed>
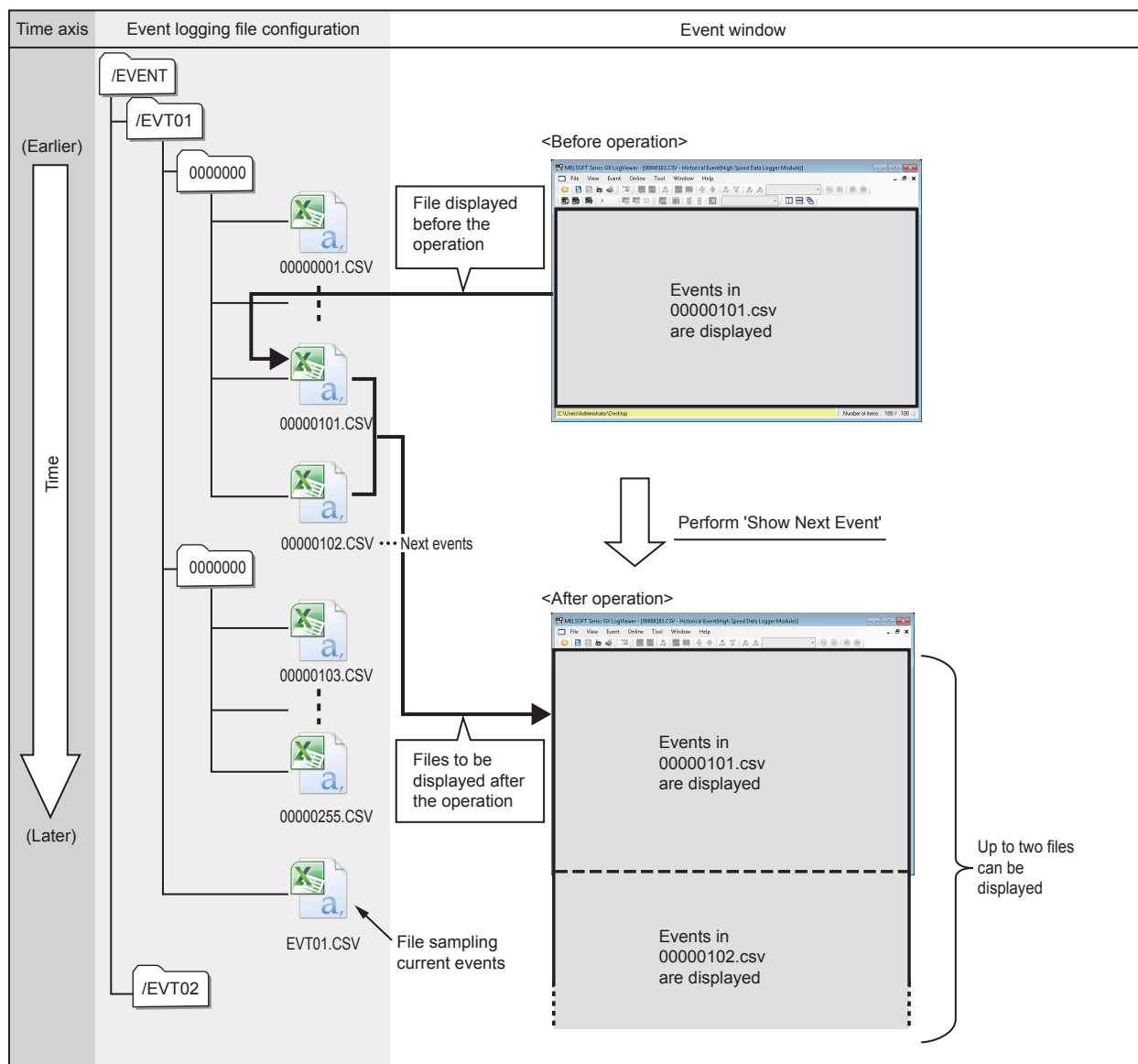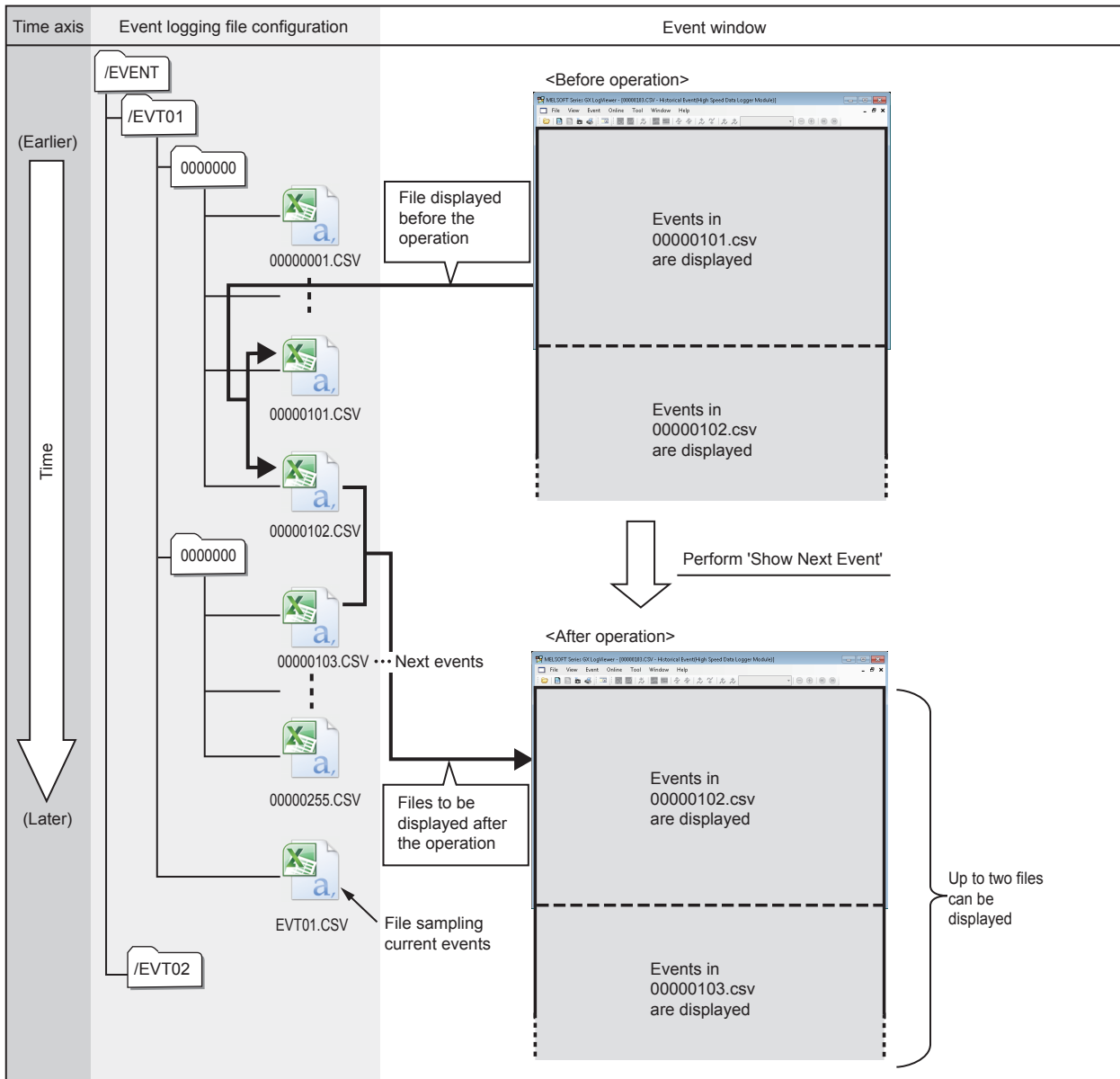
Operating procedure

Select [Event] ⇨ [Show next Event].

- The next event cannot be displayed to an Event logging file (a file that is sampling the current events) of which serial number is not assigned to the file name.
- Sorting is cleared when the function to show previous/next event is performed while events have been sorted.

9.5 Changing Display Settings of Event List

RCPU	R Analog	QnUDVCPU	High Speed Data Logger	High Speed Data Communication	Q Analog	LCPU	L Analog	BOX Data Logger	Others
✕	✕	✕	●		✕	✕	✕	●	✕

This section explains how to customize font color, background color, and display items in the event list.

The following figure shows customizable settings in an event list. The settings are changed on the "Event Properties" screen.

Since the settings of the Event Properties are common to all event windows, any change is reflected to all the event windows being displayed.

Occurrence color		Switching display/hide		Grid color

EVT01.CSV - Historical Event(High Speed Data Logger Module)

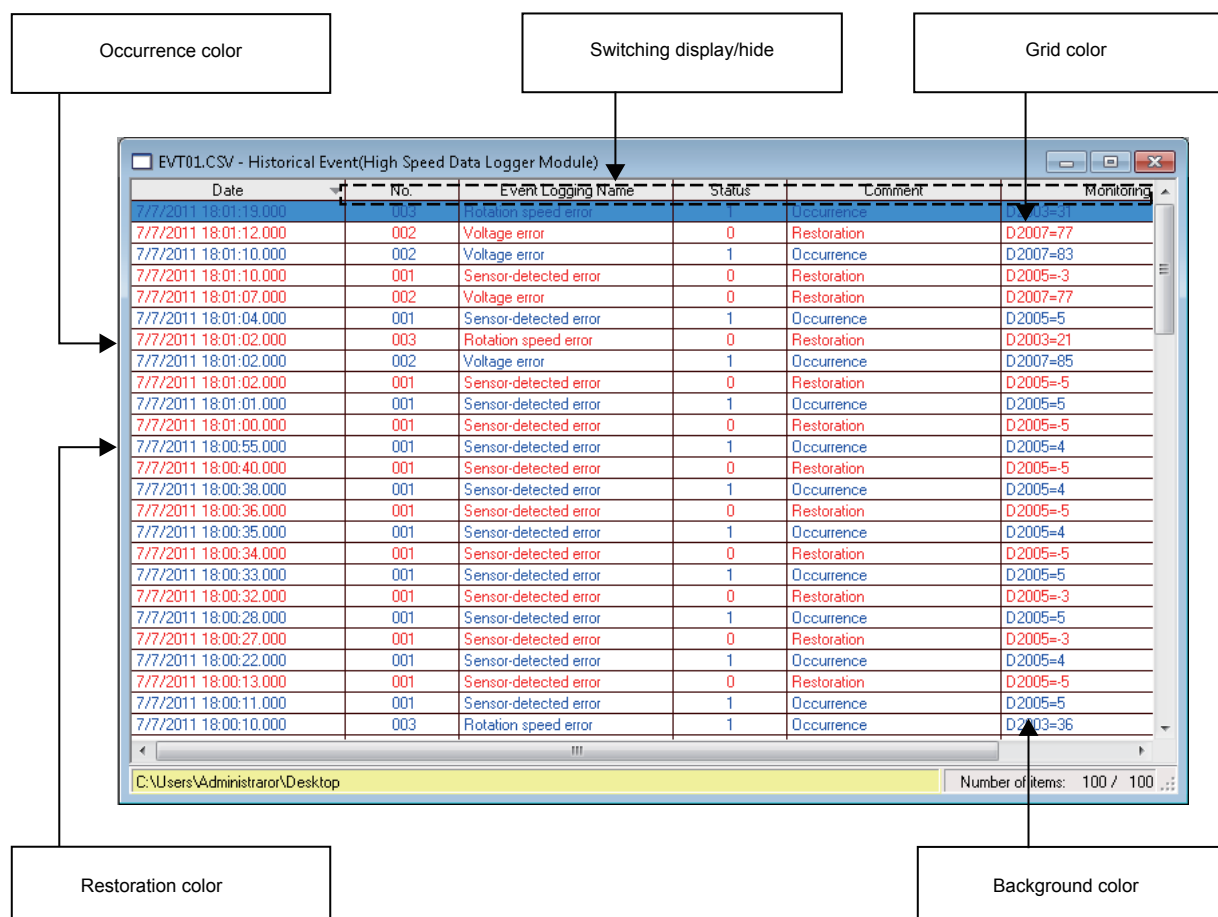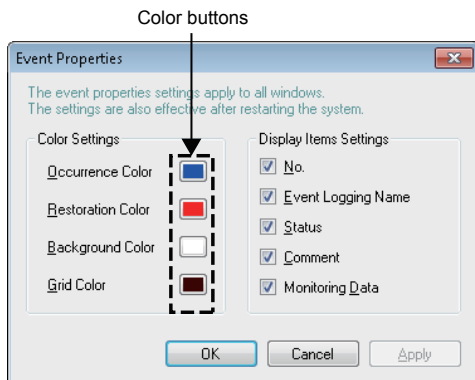| Date	No.	Event Logging Name	Status	Comment	Monitoring
7/7/2011 18:01:19.000	003	Rotation speed error	1	Occurrence	D2003=31
7/7/2011 18:01:12.000	002	Voltage error	0	Restoration	D2007=77
7/7/2011 18:01:10.000	002	Voltage error	0	Restoration	D2007=83
7/7/2011 18:01:10.000	001	Sensor-detected error	0	Restoration	D2005=-3
7/7/2011 18:01:07.000	002	Voltage error	0	Restoration	D2007=77
7/7/2011 18:01:04.000	001	Sensor-detected error	1	Occurrence	D2005=5
7/7/2011 18:01:02.000	003	Rotation speed error	0	Restoration	D2003=21
7/7/2011 18:01:02.000	002	Voltage error	1	Occurrence	D2007=85
7/7/2011 18:01:02.000	001	Sensor-detected error	0	Restoration	D2005=-5
7/7/2011 18:01:01.000	001	Sensor-detected error	1	Occurrence	D2005=5
7/7/2011 18:01:00.000	001	Sensor-detected error	0	Restoration	D2005=-5
7/7/2011 18:00:55.000	001	Sensor-detected error	1	Occurrence	D2005=4
7/7/2011 18:00:40.000	001	Sensor-detected error	0	Restoration	D2005=-5
7/7/2011 18:00:38.000	001	Sensor-detected error	1	Occurrence	D2005=4
7/7/2011 18:00:36.000	001	Sensor-detected error	0	Restoration	D2005=-5
7/7/2011 18:00:35.000	001	Sensor-detected error	1	Occurrence	D2005=4
7/7/2011 18:00:34.000	001	Sensor-detected error	0	Restoration	D2005=-5
7/7/2011 18:00:33.000	001	Sensor-detected error	1	Occurrence	D2005=5
7/7/2011 18:00:32.000	001	Sensor-detected error	0	Restoration	D2005=-3
7/7/2011 18:00:28.000	001	Sensor-detected error	1	Occurrence	D2005=5
7/7/2011 18:00:27.000	001	Sensor-detected error	0	Restoration	D2005=-3
7/7/2011 18:00:22.000	001	Sensor-detected error	1	Occurrence	D2005=4
7/7/2011 18:00:13.000	001	Sensor-detected error	0	Restoration	D2005=-5
7/7/2011 18:00:11.000	001	Sensor-detected error	1	Occurrence	D2005=5
7/7/2011 18:00:10.000	003	Rotation speed error	1	Occurrence	D2003=36

C:\Users\Administraror\Desktop   Number of items: 100 / 100

Restoration color			Background color

Point

"Custom colors" can be used by the Event Properties and the Graphic Properties in common.

(☞ Page 99 Displaying Graph Properties screen) (☞ Page 122 Displaying the Event Properties screen)

Displaying the Event Properties screen

Window

Select [Event] ⇨ [Event Properties].

Color buttons

Operating procedure

■**Changing color settings (occurrence color, restoration color, background color, grid color)**

1. Click a color button of an item to be changed.

2. Select a color from "Basic colors" or "Custom colors" on the "Color" screen, and click the [OK] button.

■**Changing display items settings (No., event logging name, status, comment, monitoring data)**

Clear the item not to display in the event list in "Display Item Settings".

10 SAVING LOGGING FILES TO PERSONAL COMPUTER

| RCPU | R Analog | QnUDVCPU | High Speed Data Logger | High Speed Data Communication ✕ | Q Analog | LCPU | L Analog | BOX Data Logger | Others ✕ |

This chapter explains how to save logging files in a memory card inserted in a module to a personal computer.

The saved files can be checked by the Historical trend graph or the Historical event list.

Operating procedure

1. Select [Online] ⇨ [Save Logging File to PC] (🖳).

2. Select an equipment from which logging files are obtained on the "Connection Destination" screen.

3. Specify a module to be connected and the connection method on the screen shown below:
- RCPU, MELSEC iQ-R series analog module: "Transfer Setup" screen (☞ Page 46 Connecting to RCPU)
- QnUDVCPU/LCPU, MELSEC-Q/L analog module: "Transfer Setup" screen (☞ Page 47 Connecting to QCPU/LCPU)
- Data logger: "Transfer Setup" screen (☞ Page 50 Connecting to Data logger/Data communication)

4. Select the file to be saved from a list on the "Logging File" screen, and click the [Save to PC] button. (Multiple files can be selected.)

5. Specify the destination to save the file.
- Saving 1 file: Save the file by specifying the file name.
- Saving more than 1 file: Save multiple files by specifying the folder at once. The files cannot be saved in different folders. The file name cannot be changed.

Precautions

The file format of a Unicode text file/CSV file saved with the Logging file save function explained in this chapter differs from that of those files saved with the displayed data/event save function explained in the after-mentioned chapter, "Saving displayed data/events". (☞ Page 128 SAVING DISPLAYED DATA/EVENTS)

For more details on file formats of Unicode text file/CSV file obtained directly from a module and saved with the Logging file save function, refer to manuals for respective modules.

> **Restriction**🖐
>
> Updating other monitoring data may be delayed in the following cases since saving Data logging file requires time:
> - Saving a Data logging file while the data logging function is being performed.
> - Saving a large-volume Data logging file

MEMO

11 USING WINDOWS/FOLDERS DISPLAYED IN PAST

11.1 Overview

The window/folder information of the windows being displayed can be saved with the Frequently-used window configuration function, the Resent windows function, or the Recent folders function to redisplay them easily next time.

Function name	Description	Target settings to be saved	Reference
Frequently-used Window Configuration	Names the information (listed in the right column) of all the windows being displayed, and adds them to the menu. The added window can be redisplayed easily from the menu.	• Window layout of each window • Connection information with a module and information of the logging file save destination • All of the data and events being displayed • Displaying trend window[*1] • Displaying event window[*2] • Sorting status and filtering condition of an event list	Page 126 Adding/Restoring Frequently-Used Window Configuration to Menu
Recent Windows	Adds all the windows being displayed to the menu automatically. The added window can be redisplayed easily from the menu.	• Connection information with a module and information of the logging file save destination • All of the data and events being displayed • Displaying trend window[*1] • Displaying event window[*2] • Sorting status and filtering condition of an event list	Page 127 Redisplaying Recently-Used Windows
Recent Folders	Adds a folder specified when opening or saving a file to the menu automatically. The added folder can be opened easily from the menu to select a logging file.	Save destination of data and events being displayed • Directory path in a personal computer • Directory path of a memory card inserted in a module	Page 127 Redisplaying Recently-Used Folders

*1　Back ground color, grid color, and trigger ON/OFF color of trend window are excluded.

*2　Background color, grid color, occurrence/restoration color, and display selection status of each column are excluded.

11.2 Adding/Restoring Frequently-Used Window Configuration to Menu

Trend windows or event windows displayed frequently can be added to the menu as frequently-used window configurations, and redisplayed easily.

Frequently-used window configurations can be exported and used for other logon users or a personal computer.

Operating procedure

■Adding a frequently-used window configuration to the menu

1. Arrange a window configuration to be added as a frequently-used window configuration.

2. Select [Window] ⇨ [Frequently-used Window Configuration] ⇨ [Add to Frequently-used Window Configuration].

3. Enter a name for "Name" on the "Add to Frequently-used Window Configuration" screen, and click the [OK] button.

> **Point**
>
> A new folder can be created under the folder being selected on the "Add to Frequently-used Window Configuration" screen. Select a folder name and click the [New Folder] button.

■Restoring a frequently-used window configuration

Select [Window] ⇨ [Frequently-used Window Configuration] ⇨ [(name of a frequently-used window configuration)].

■Deleting, renaming, or sorting a frequently-used window configuration

Select [Window] ⇨ [Frequently-used Window Configuration] ⇨ [(name of a frequently-used window configuration)], and right-click it. Then, select [Delete]/[Rename]/[Sort by Name] from the shortcut menu.

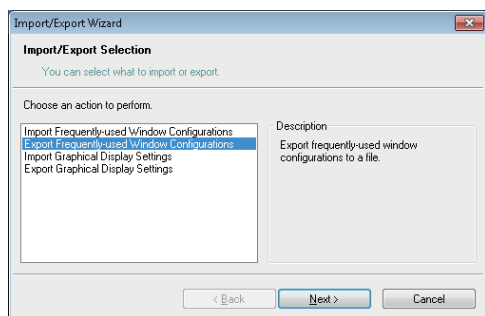### ■Changing order of frequently-used window configurations in the menu

Select [Window] ⇨ [Frequently-used Window Configuration] ⇨ [(name of a frequently-used window configuration)], and drag it to the desired position.

Importing/Exporting frequently-used window configurations

- Importing: All information included in an export file is imported.
  The import operation discards all registered frequently-used window configurations, and then imports a file.
- Exporting: The folder hierarchy information is also saved in an export file.

Window

Select [File] ⇨ [Import and Export].

Operating procedure

1. Select "Import Frequently-used Window Configurations"/"Export Frequently-used Window Configurations", and click the [Next] button.

2. Specify a path of the file to be imported or a path and a name of the file to which exported data is written, and clock the [Next] button.

3. Click the [Finish] button.

11.3 Redisplaying Recently-Used Windows

Trend windows or event windows displayed recently can be added to the menu automatically as recent windows, and redisplayed easily.

Up to nine recent windows can be saved by each of the window types. The chronologically oldest window setting is removed from the menu when the tenth window is added. Only one realtime monitor window can be saved.

If data in a memory card is changed after the setting of a window being displayed has been saved, the window configuration may not be restored with the Recent window function.

Operating procedure

Select [Window] ⇨ [Recent Windows] ⇨ [Historical Trend]/[Realtime Trend]/[Historical Event]/[Realtime Event]/[Realtime Monitor].

11.4 Redisplaying Recently-Used Folders

Folders used recently can be added to the menu automatically as recent folders, and can be easily opened.

Up to nine recent folders can be saved. The chronologically oldest recent folder setting is removed from the menu when the tenth recent folder is added.

Operating procedure

■Opening a logging file in a personal computer
Select [File] ⇨ [Recent Folders].

■Opening a logging file in a memory card inserted in a module
Select [Online] ⇨ [Recent Folders].

12 SAVING DISPLAYED DATA/EVENTS

RCPU | R Analog | QnUDVCPU | High Speed Data Logger | High Speed Data Communication | Q Analog | LCPU | L Analog | BOX Data Logger | Others

This function is for saving data being displayed in trend windows and events being displayed in event windows to a personal computer as Unicode test file, CSV file, or image file (BMP/JPG/PNG).

The saved Unicode text file and CSV file can be displayed on the trend window and event window.

12.1 Save Target Data/Event

The data and event being displayed on the active trend window and event window can be saved.

The Realtime trend graph/Realtime monitor graph can be saved in CSV format/Unicode format only when the monitoring process is stopped or the graph drawing is suspended.

> **Point**
>
> When two Data logging files or two Event logging files are consecutively displayed, their data or events can be saved to one file.

12.2 Saving Displayed Data

RCPU | R Analog | QnUDVCPU | High Speed Data Logger | High Speed Data Communication | Q Analog | LCPU | L Analog | BOX Data Logger | Others

This section explains how to save data being displayed on the active trend window to any of the following files.

File format	Reference
Unicode text file	Page 128 Saving displayed data to Unicode text file
CSV file	Page 132 Saving displayed data to CSV file
Image file	Page 144 Saving displayed trend graphs to image file

Saving displayed data to Unicode text file

RCPU | ~~R Analog~~ | ~~QnUDVCPU~~ | ~~High Speed Data Logger~~ | ~~High Speed Data Communication~~ | ~~Q Analog~~ | ~~LCPU~~ | ~~L Analog~~ | ~~BOX Data Logger~~ | ~~Others~~

When using RCPU, save data being displayed in the graph area of active trend window to a Unicode text file.

The data to be saved are as shown below. Data removed from the graph area are not saved.

 • Historical trend graph: Data of a Data logging file being displayed are saved.
 • Realtime monitor graph: Data received from the start of monitoring to the pause/stop of graph drawing are saved.

Operating procedure

1. Select [File] ⇨ [Save As] ⇨ [Save Unicode Text File] (🔲).

2. Enter a file name, and click the [Save] button.

Format specification of Unicode text file

■RCPU

The Unicode text file format explained in this section differs from the Unicode text file format obtained from RCPU. For details on the Unicode text file format of RCPU, refer to the following manual.

📖MELSEC iQ-R CPU Module User's Manual (Application)

Item	Description
Delimiter	Tab
Linefeed code	CRLF (0x0D, 0x0A)
Character code	Unicode
Character encoding method	UTF-16 (little-endian)
Filed data	""(double quotes) without enclosure Tab cannot be used for each data
Number of rows	For the data logging file: Up to 131005 rows (data rows + 5) For realtime monitor graph: Up to 1000005 (data rows +4)

Ex.

When opening a logging file (*.txt) in Excel®

Output data of rows/columns	Column number	Column name	Output data
■File information row	1st column	File type	File type of output file Fixed value: [LOGGING]
	2nd column	Type information_file version	Version of output file Fixed value: • RCPU_1
	3rd column	Number for data type information row	Number indicating the data type information row Fixed value: • With comment row: 3 • Without comment row: 2
	4th column	Number for data name row	Number indicating the data name row Fixed value: • With comment row: 4 • Without comment row: 3
	5th column	Number for device comment row	Number indicating the device comment row Fixed value: • With comment row: 5 • Without comment row: 4
	6th column	Number for data starting rows	Starting number of data rows Fixed value: • With comment row: 6 • Without comment row: 5
	7th column	Number for comment row[*1]	Number indicating the comment row Fixed value: 2

Output data of rows/ columns	Column number	Column name	Output data
■Data type information row	1st column	Date and time column[*2]	Data type of date and time column Fixed string: DATETIME[YYYY/MM/DD hh:mm:ss
	2nd column	Millisecond column[*2]	Data type of millisecond column of date and time Fixed string: ms]
	3rd column	Data sampling interval column	Data type of data sampling interval column Fixed string: INTERVAL
	4th column	Execution step number column	Data type of execution step number column Fixed string: STEP NO.
	5th column	Execution program number column	Data type of execution program number column Fixed string: PROGRAM NO.
	6th column	Execution program name column	Data type of execution program name column Fixed string: PROGRAM NAME
	7th column	Index column	Index column Fixed string: INDEX
	8th column and later	Data column	Data type of sampled data Output format: Data type output string [Additional information] ☞ Page 144 Data type output string
	Last column	Trigger information column	Fixed string regardless of continuous logging/trigger logging Output format: TRIGGER[(trigger ON string)][*3]
■Data name row	1st column	Date and time column[*2]	Title of the Date and time column Fixed string: TIME
	2nd column	Millisecond column[*2]	Title of millisecond column of date and time Fixed string: msec
	3rd column	Data sampling interval column	Title of the Data sampling interval column Fixed string: INTERVAL[μs]
	4th column	Execution step number column	Title of execution step number column Fixed string: STEP NO.
	5th column	Execution program number column	Title of execution program number column Fixed string: PROGRAM NO.
	6th column	Execution program name column	Title of execution program name column Fixed string: PROGRAM NAME
	7th column	Index column	Title of the Index column Fixed string: INDEX
	8th column and later	Data column	Title of the Data column Output format: Device number or device labels
	Last column	Trigger information column	Title of the Trigger information column Fixed string: Trigger
■Device comment row	1st column	Date and time column	Blank
	2nd column	Millisecond column	Blank
	3rd column	Data sampling interval column	Blank
	4th column	Execution step number column	Blank
	5th column	Execution program number column	Blank
	6th column	Execution program name column	Blank
	7th column	Index column	Blank
	8th column and later	Data column	When "Display comments" is selected in the "data setting" Output comments of the specified comment number When "Display comments" is not selected in the "data setting", or for the realtime monitor window Blank
	Last column	Trigger information column	Blank

Output data of rows/columns	Column number	Column name	Output data
■Data row	1st column	Date and time column[*2]	Date and time information Output format: YYYY/MM/DD hh:mm:ss
	2nd column	Millisecond column[*2]	Value of millisecond
	3rd column	Data sampling interval column[*4]	Value of data sampling interval
	4th column	Execution step number column[*4]	Value of execution step number Output format: Integer value
	5th column	Execution program number column[*4]	Value of execution program number Output format: Integer value
	6th column	Execution program name column[*4]	Execution program name Output format: STRING (program name)
	7th column	Index column[*5]	Value of index Output format: Integer value
	8th column and later	Data column	Value of sampled device Output format: Value corresponds to the type in the data type information row
	Last column	Trigger information column	Information at trigger generation Output format: String specified by configuration tool

*1 This column is not output when the comment row is not output to the logging data, or for the realtime monitor window.

*2 When the data, whose Date and time column is set not to output by the configuration tool, is saved to a Unicode text file, the Date and time column and the Millisecond column are not output.

3 For the continuous logging, or for the realtime monitor window, "" is output for "trigger ON string".

*4 When the data, whose columns are set not to output by the configuration tool, is saved to a Unicode text file, the column corresponds to those not-output items is not output, and only the tab character as the delimiter is output.

*5 When the data, whose indexes are set not to output by the configuration tool, is saved to a Unicode text file, the indexes with starting from 1 are automatically output.

■Data type output string

Data type	Data type output string	Output data
Bit	BIT	BIT[(ON string);(OFF string)][*1]
Word [unsigned]	USHORT	USHORT[DEC.0]
Word [signed]	SHORT	SHORT[DEC.0]
Double word [unsigned]	ULONG	ULONG ULONG[DEC.0]
Double word [signed]	LONG	LONG LONG[DEC.0]
FLOAT (Single Precision)	FLOAT	FLOAT[DEC.7][*2]
FLOAT (Double Precision)	DOUBLE	DOUBLE[DEC.14][*2]
16bit BCD	BCD16	BCD16[DEC.0]
32bit BCD	BCD32	BCD32[DEC.0]

*1 On a historical trend window on which a Unicode text file is opened, a trigger ON string and trigger OFF string are displayed according to the information in the file.

*2 The number of digits after decimal point indicates the maximum number of digits, therefore all of the specified number of digits are not always displayed.
(Example) For 1.2345, '1.2345' is output, not '1.2345000'.

Saving displayed data to CSV file

RCPU ✕ R Analog QnUDVCPU High Speed Data Logger High Speed Data Communication Q Analog LCPU L Analog BOX Data Logger Others

Save data displayed in the graph legend area of active trend window to a CSV file.

When saving data displayed in the Historical trend graph, data names are saved in the language specified in the language selection setting.

The data to saved are as follows. Data removed from the graph legend are not saved.

- Historical trend graph: Data of a Data logging file being displayed is saved.
- Realtime trend graph/Realtime monitor graph: Data received from the start of monitoring to the pause/stop of graph drawing are saved.

Operating procedure

1. Select [File] ⇨ [Save As] ⇨ [Save CSV File] (🖽).

2. Enter a file name, and click the [Save] button.

Format specification of CSV file

CSV file format may differ depending on file types. For details on the format, refer to the following sections:

File type		Reference
Logging	QnUDVCPU/LCPU	Page 133 QnUDVCPU/LCPU
	Data logger	Page 135 Data logger
	Data communication	Page 137 Data communication
	Analog module	Page 139 Analog module
	Energy Measuring Unit	Page 140 Energy Measuring Unit
Sampling trace		Page 142 Sampling trace
Simulation result saved with FLEXIBLE HIGH-SPEED I/O CONTROL Module Configuration tool		Page 143 Simulation result saved with FLEXIBLE HIGH-SPEED I/O CONTROL Module Configuration tool

■QnUDVCPU/LCPU

The CSV file format explained below differs from the CSV file format obtained from QnUDVCPU/LCPU. For details on the CSV file format of QnUDVCPU/LCPU, refer to the following manual.

📖 QnUDVCPU/LCPU User's Manual (Data Logging Function)

Item	Description
Delimiter	, (comma)
Linefeed code	CRLF (0x0D, 0x0A)
Character code	ASCII
Number of rows	Maximum number of rows: 131004 rows (data rows + 4) For the realtime monitor graph: Up to 1000004 rows (data rows + 3)

Ex.

Output data of rows/ columns	Column number	Column name	Output data
■File information row	1st column	File type	File type of output file Fixed value: [LOGGING]
	2nd column	Type information_file version	Version of output file Fixed value: • QnUDVCPU:Q1 • LCPU:L1
	3rd column	Number for data type information row	Number indicating the data type information row Fixed value: • With comment row: 3 • Without comment row: 2
	4th column	Number for data name row	Number indicating the data name row Fixed value: • With comment row: 4 • Without comment row: 3
	5th column	Number for data starting rows	Starting number of data rows Fixed value: • With comment row: 5 • Without comment row: 4
	6th column	Number for comment row[1]	Number indicating the comment row Fixed value: 2
■Data type information row	1st column	Date and time column[2]	Data type of date and time column Fixed string: DATETIME[YYYY/MM/DD hh:mm:ss
	2nd column	Millisecond column[2]	Data type of millisecond column of date and time Fixed string: ms]
	3rd column	Data sampling interval column	Data type of data sampling interval column Fixed string: INTERVAL
	4th column	Execution step number column	Data type of execution step number column Fixed string: STEP NO.
	5th column	Execution program name column	Data type of execution program name column Fixed string: PROGRAM NAME
	6th column	Index column	Index column Fixed string: INDEX
	7th column and later	Data column	Data type of sampled data Output format: Data type output string [Additional information] ☞ Page 144 Data type output string
	Last column	Trigger information column	Fixed string regardless of continuous logging/trigger logging Output format: TRIGGER[(trigger ON string)][3]

Output data of rows/columns	Column number	Column name	Output data
■Data name row	1st column	Date and time column[*2]	Title of the Date and time column Fixed string: TIME
	2nd column	Millisecond column[*2]	Title of millisecond column of date and time Fixed string: msec
	3rd column	Data sampling interval column	Title of the Data sampling interval column Fixed string: INTERVAL[sμ]
	4th column	Execution step number column	Title of execution step number column Fixed string: STEP NO.
	5th column	Execution program name column	Title of execution program name column Fixed string: PROGRAM NAME
	6th column	Index column	Title of the Index column Fixed string: INDEX
	7th column and later	Data column	Title of the Data column Output format: Device number or device comments
	Last column	Trigger information column	Title of the Trigger information column Fixed string: Trigger
■Data row	1st column	Date and time column[*2]	Date and time information Output format: YYYY/MM/DD hh:mm:ss
	2nd column	Millisecond column[*2]	Value of millisecond
	3rd column	Data sampling interval column[*4]	Value of data sampling interval
	4th column	Execution step number column[*4]	Value of execution step number Output format: Integer value
	5th column	Execution program name column[*4]	Execution program name Output format: STRING (program name)
	6th column	Index column[*5]	Value of index Output format: Integer value
	7th column and later	Data column	Value of sampled device Output format: Value corresponds to the type in the data type information row
	Last column	Trigger information column	Information at trigger generation Output format: String specified by configuration tool

*1   This column is not output when the comment row is not output to the logging data.
*2   When the data, whose Date and time column is set not to output by the configuration tool, is saved to a CSV file, the Date and time column and the Millisecond column are not output.
3   For the continuous logging, "" is output for "trigger ON string".
*4   When the data, whose columns are set not to output by the configuration tool, is saved to a CSV file, the data in the columns correspond to those not-output items are not output, and only the delimiter "," (comma) is output.
*5   When the data, whose indexes are set not to output by the configuration tool, is saved to a CSV file, the indexes with starting from 1 are automatically output.

■Data logger

The CSV file format explained below differs from the CSV file format obtained from Data logger. For details on the CSV file format of Data logger, refer to the following manuals.

📖 High Speed Data Logger Module User's Manual
📖 BOX Data Logger User's Manual

Item	Description
Delimiter	, (comma)
Linefeed code	CRLF (0x0D, 0x0A)
Character code	ASCII
Number of rows	Maximum number of rows: 200003 rows (data rows + 3)

Ex.

Output data of rows/columns	Column number	Column name	Output data
■File information row	1st column	File type	File type of output file Fixed value: [LOGGING]
	2nd column	Type information_file version	Version of output file Fixed value: • High Speed Data Logger: 1 • BOX Data Logger: NZ2DL_2[*1]
	3rd column	Number for data type information row	Number indicating the data type information row Fixed value: 2
	4th column	Number for data name row	Number indicating the data name row Fixed value: 3
	5th column	Number for data starting rows	Starting number of data rows Fixed value: 4
■Data type information row	1st column	Date and time column[*2]	Data type of date and time column Fixed string: DATETIME[YYYY/MM/DD hh:mm:ss
	2nd column	Microsecond column[*2]	Data type of microsecond column of date and time Fixed string: μs]
	3rd column	Index column	Index column Fixed string: INDEX
	4th column and later	Data column	Data type of sampled data Output format: Data type output string [Additional information] ☞ Page 144 Data type output string
	Last column	Trigger information column	Fixed string regardless of continuous logging/trigger logging Output format: TRIGGER[(trigger ON string);(trigger OFF string)][*3]
■Data name row	1st column	Date and time column[*2]	Title of the Date and time column Fixed string: TIME
	2nd column	Microsecond column[*2]	Title of microsecond column of the data and time Fixed string: μsec[*4]
	3rd column	Index column	Title of the Index column Fixed string: INDEX
	4th column and later	Data column	Title of the Data column Output format: Data name
	Last column	Trigger information column	Title of the Trigger information column Fixed string: Trigger

Output data of rows/columns	Column number	Column name	Output data
■Data row	For saving data displayed in a historical trend window, data is output in the order that it was stored in a Data logging file. For saving data displayed in a realtime trend window, data is output in the order that it was received.		
	1st column	Date and time column[*2]	Date and time information Output format: YYYY/MM/DD hh:mm:ss
	2nd column	Microsecond column[*2]	Value of microsecond
	3rd column	Index column[*5]	Value of index Output format: Integer value
	4th column and later	Data column	Value of sampled device Output format: Value corresponds to the type in the data type information row
	Last column	Trigger information column	Information at trigger generation Output format: String specified by configuration tool

*1　(Product type)_(Version number) is displayed at the Type information_file version column.

*2　When the data, whose Date and time column is set not to output by the configuration tool, is saved to a CSV file, the Date and time column and the Microsecond column are not output.

*3　On a historical trend window on which a CSV file is opened, a trigger ON string and trigger OFF string are displayed according to the information in the file.
On a realtime trend window on which a binary file is opened, a trigger ON string and a trigger OFF string are displayed as "*" and "-" respectively when output in a CSV file.

*4　When a data, whose Date and time column is set to output and Microsecond column is set not to output, is saved to a CSV file, the Microsecond column is output.

*5　When the data, whose indexes are set not to output by the configuration tool, is saved to a CSV file, the indexes with starting from 1 are automatically output.

■Data communication

Item	Description
Delimiter	, (comma)
Linefeed code	CRLF (0x0D, 0x0A)
Character code	ASCII
Number of rows	Maximum number of rows: 100004 rows (data rows + 3)

Ex.

Output data of rows/columns	Column number	Column name	Output data
■File information row	1st column	File type	File type of output file Fixed value: [LOGGING]
	2nd column	Type information_file version	Version of output file Fixed value: QJ71DC96_1[*1]
	3rd column	Number for data type information row	Number indicating the data type information row Fixed value: 2
	4th column	Number for data name row	Number indicating the data name row Fixed value: 3
	5th column	Number for data starting rows	Starting number of data rows Fixed value: 4
■Data type information row	1st column	Date and time column[*2]	Data type of date and time column Fixed string: DATETIME[YYYY/MM/DD hh:mm:ss
	2nd column	Microsecond column[*2]	Data type of microsecond column of date and time Fixed string: µs]
	3rd column	Index column	Index column Fixed string: INDEX
	4th column and later	Data column	Data type of sampled data Output format: Data type output string [Additional information] ☞ Page 144 Data type output string
	Last column	Trigger information column	Fixed string regardless of continuous logging/trigger logging Output format: TRIGGER[(trigger ON string);(trigger OFF string)][*3]
■Data name row	1st column	Date and time column[*2]	Title of the Date and time column Fixed string: TIME
	2nd column	Microsecond column[*2]	Title of microsecond column of the data and time Fixed string: µsec[*4]
	3rd column	Index column	Title of the Index column Fixed string: INDEX
	4th column and later	Data column	Title of the Data column Output format: Data name
	Last column	Trigger information column	Title of the Trigger information column Fixed string: Trigger
■Data row	For saving data displayed in a historical trend window, data is output in the order that it was stored in a Data logging file. For saving data displayed in a realtime trend window, data is output in the order that it was received.		
	1st column	Date and time column[*2]	Date and time information Output format: YYYY/MM/DD hh:mm:ss
	2nd column	Microsecond column[*2]	Value of microsecond
	3rd column	Index column[*5]	Value of index Output format: Integer value
	4th column and later	Data column	Value of sampled device Output format: Value corresponds to the type in the data type information row
	Last column	Trigger information column	— (Blank)

*1   (Product type)_(Version number) is displayed at the Type information_file version column.

*2   When the data, whose Date and time column is set not to output by the configuration tool, is saved to a CSV file, the Date and time column and the Microsecond column are not output.

*3   On a historical trend window on which a CSV file is opened, a trigger ON string and trigger OFF string are displayed according to the information in the file.
     On a realtime trend window on which a binary file is opened, a trigger ON string and a trigger OFF string are displayed as "*" and "-" respectively when output in a CSV file.

*4   When a data, whose Date and time column is set to output and Microsecond column is set not to output, is saved to a CSV file, the Microsecond column is output.

*5   When the data, whose indexes are set not to output by the configuration tool, is saved to a CSV file, the indexes with starting from 1 are automatically output.

■Analog module

The CSV file format explained below differs from the CSV file format obtained from Analog module. For details of the CSV file format of an Analog module, refer to the user's manual of each Analog module.

Item	Description
Delimiter	, (comma)
Linefeed code	CRLF (0x0D, 0x0A)
Character code	ASCII
Number of rows	Maximum number of rows: 10003 rows (data rows + 3)

Ex.

Output data of rows/columns	Column number	Column name	Output data
■File information row	1st column	File type	File type of output file Fixed value: [LOGGING]
	2nd column	Type information_file version	Version of output file The file version of Analog module differs depending on the module type. For details, refer to the user's manual of each module. (Example) R60AD4: RAD_1 (Example) Q68CT: Q68CT_1 (Example) L60AD4: LAD1
	3rd column	Number for data type information row	Number indicating the data type information row Fixed value: 2
	4th column	Number for data name row	Number indicating the data name row Fixed value: 3
	5th column	Number for data starting rows	Starting number of data rows Fixed value: 4
■Data type information row	1st column	Index column	Index column Fixed string: INDEX
	2nd column and later	Data column	Data type of sampled data Output format: Data type output string [Additional information] ☞ Page 144 Data type output string
	Last column	Trigger information column	Fixed string: TRIGGER[(trigger ON string)][1]
■Data name row	1st column	Index column	Title of the Index column Fixed string: INDEX
	2nd column and later	Data column	Title of the Data column Output format: "DATE:" Hold trigger generated time • "I/O:" XY address number to acquire logging data • "CH:" Target channel • "CYCLE:" Logging cycle (Fixed string is displayed in " ")
	Last column	Trigger information column	Title of the Trigger information column Fixed string: Trigger
■Data row			For saving data displayed in a historical trend window, data is output in the order that it was stored in a Data logging file.
	1st column	Index column[2]	Value of index Output format: Integer value
	2nd column and later	Data column	Value of sampled device Output format: Value corresponds to the type in the data type information row
	Last column	Trigger information column	Information at trigger generation

1 "" is output for 'trigger ON string'.
*2 For Analog module, indexes are not output in a logging file. Therefore, when saving the data to a CSV file, the index is output with continuous numbers from 1 automatically.

■Energy Measuring Unit

The CSV file format explained below differs from the CSV file format obtained from Energy Measuring Unit. For details of CSV file formats of Energy Measuring Unit, refer to manuals of Energy Measuring Unit.

 • Acquiring manuals of Energy Measuring Unit in Japan

The Manuals can be downloaded from Mitsubishi Electric FA site.

www.MitsubishiElectric.co.jp/fa

 • Acquiring manuals of Energy Measuring Unit in other countries

For information on how to obtain the manual, please consult your local Mitsubishi representative.

Item	Description
Delimiter	, (comma)
Linefeed code	CRLF (0x0D, 0x0A)
Character code	ASCII
Number of rows	Maximum number of rows: 3603 rows (data rows + 3)

Ex.

Output data of rows/columns	Column number	Column name	Output data
■File information row	1st column	File type	File type of output file Fixed value: [LOGGING]
	2nd column	Type information_file version	Version of output file Fixed value: YM_1[*1]
	3rd column	Number for data type information row	Number indicating the data type information row Fixed value: 2
	4th column	Number for data name row	Number indicating the data name row Fixed value: 3
	5th column	Number for data starting rows	Starting number of data rows Fixed value: 4
■Data type information row	1st column	Date and time column[*2]	Data type of date and time column Fixed string: DATETIME[YYYY/MM/DD hh:mm:ss
	2nd column	Microsecond column[*2]	Data type of microsecond column of date and time Fixed string: μs]
	3rd column	Index column	Index column Fixed string: INDEX
	4th column and later	Data column	Data type of sampled data Output format: Data type output string [Additional information] ☞ Page 144 Data type output string
	Last column	Trigger information column	Fixed string regardless of continuous logging/trigger logging Output format: TRIGGER[(trigger ON string);(trigger OFF string)][*3]
■Data name row	1st column	Date and time column[*2]	Title of the Date and time column Fixed string: TIME
	2nd column	Microsecond column[*2]	Title of microsecond column of the data and time Fixed string: μsec[*4]
	3rd column	Index column	Title of the Index column Fixed string: INDEX
	4th column and later	Data column	Title of the Data column Output format: Data name
	Last column	Trigger information column	Title of the Trigger information column Fixed string: Trigger

Output data of rows/ columns	Column number	Column name	Output data
■Data row	For saving data displayed in a historical trend window, data is output in the order that it was stored in a Data logging file. For saving data displayed in a realtime trend window, data is output in the order that it was received.		
	1st column	Date and time column[*2]	Date and time information Output format: YYYY/MM/DD hh:mm:ss
	2nd column	Microsecond column[*2]	Value of microsecond Fixed value: 0
	3rd column	Index column[*5]	Value of index Output format: Integer value
	4th column and later	Data column	Value of sampled device Output format: Value corresponds to the type in the data type information row
	Last column	Trigger information column	— (Blank)

*1 (Product type)_(Version number) is displayed at the Type information_file version column.

*2 When the data whose Date and time column is set not to output is saved to a CSV file, the Date and time column and the Millisecond column are not output.

*3 On a historical trend window on which a CSV file is opened, a trigger ON string and trigger OFF string are displayed according to the information in the file.
On a realtime trend window on which a binary file is opened, a trigger ON string and a trigger OFF string are displayed as "*" and "-" respectively when output in a CSV file.

*4 When a data, whose Date and time column is set to output and Microsecond column is set not to output, is saved to a CSV file, the Microsecond column is output.

*5 When the data whose indexes are set not to output is saved to a CSV file, the indexes with starting from 1 are automatically output.

12

■Sampling trace

Item	Description
Delimiter	, (comma)
Linefeed code	CRLF (0x0D, 0x0A)
Character code	ASCII
Number of rows	Maximum number of rows:8196 rows (data rows + 4)

Ex.

Output data of rows/ columns	Column number	Column name	Output data
■File information row	1st column	File type	File type of output file Fixed value: [LOGGING]
	2nd column	Type information_file version	Version of output file SamplingTrace_(Version number) (Example) SamplingTrace_1
	3rd column	Number for data type information row	Number indicating the data type information row Fixed value: • With comment row: 3 • Without comment row: 2
	4th column	Number for data name row	Number indicating the data name row Fixed value: • With comment row: 4 • Without comment row: 3
	5th column	Number for data starting rows	Starting number of data rows Fixed value: • With comment row: 5 • Without comment row: 4
	6th column	Number for comment row[*1]	Number indicating the comment row Fixed value: 2
■Data type information row	1st column	Index column	Index column Fixed string: INDEX
	2nd column and later	Data column	Data type of sampled data Output format: Data type output string [Additional information] ☞ Page 144 Data type output string
	Last column	Trigger information column	Fixed string: TRIGGER[(trigger ON string)][*2]
■Data name row	1st column	Index column	Title of the Index column Fixed string: INDEX
	2nd column and later	Data column	Title of the Data column Device or device comment
	Last column	Trigger information column	Title of the Trigger information column Fixed string: Trigger
■Data row	1st column	Index column[*3]	Value of index Output format: Integer value
	2nd column and later	Data column	Value of sampled device Output format: Value corresponds to the type in the data type information row
	Last column	Trigger information column	Information at trigger generation

*1 This column is not output when the comment row is not output to the logging data.
2 "" is output for 'trigger ON string'.
*3 When the data whose indexes are set not to output is saved to a CSV file, the indexes with starting from 1 are automatically output.

■Simulation result saved with FLEXIBLE HIGH-SPEED I/O CONTROL Module Configuration tool

Item	Description
Delimiter	, (comma)
Linefeed code	CRLF (0x0D, 0x0A)
Character code	ASCII
Number of rows	Maximum number of rows: 2051 rows (data rows + 3)

Ex.

Output data of rows/columns	Column number	Column name	Output data
■File information row	1st column	File type	File type of output file Fixed value: [LOGGING]
	2nd column	Type information_file version	Version of output file LD40PD01_(Version number) (Example) LD40PD01_1
	3rd column	Number for data type information row	Number indicating the data type information row Fixed value: 2
	4th column	Number for data name row	Number indicating the data name row Fixed value: 3
	5th column	Number for data starting rows	Starting number of data rows Fixed value: 4
■Data type information row	1st column	Index column	Index column Fixed string: INDEX
	2nd column and later	Data column	Data type of sampled data Output format: Data type output string [Additional information] ☞Page 144 Data type output string
	Last column	Trigger information column	Fixed string: TRIGGER[(trigger ON string)][1]
■Data name row	1st column	Index column	Title of the Index column Fixed string: INDEX
	2nd column and later	Data column	Title of the Data column Output format: Block name_Terminal name[2]
	Last column	Trigger information column	Title of the Trigger information column Fixed string: Trigger
■Data row	1st column	Index column[3]	Value of index Output format: Integer value
	2nd column and later	Data column	Value of terminal Output format: Value corresponds to the type in the data type information row
	Last column	Trigger information column	Information at trigger generation

1 "" is output for 'trigger ON string'.
*2 Only terminal name is displayed in some cases.
*3 When the data whose indexes are not output is saved to a CSV file, the indexes with starting from 1 are automatically output.

■Data type output string

Data type	Data type output string	Output data
Bit	BIT	BIT[(ON string);(OFF string)][*1]
Word [unsigned]	USHORT	USHORT[DEC.0]
Word [signed]	SHORT	SHORT[DEC.0]
Double word [unsigned]	ULONG	ULONG ULONG[DEC.0]
Double word [signed]	LONG	LONG LONG[DEC.0]
FLOAT (Single Precision)	FLOAT	FLOAT[DEC.7][*2]
FLOAT (Double Precision)	DOUBLE	DOUBLE[DEC.14][*2]
16bit BCD	BCD16	BCD16[DEC.0]
32bit BCD	BCD32	BCD32[DEC.0]

*1 On a historical trend window on which a CSV file is opened, a trigger ON string and trigger OFF string are displayed according to the information in the file.
On a realtime trend window on which a binary file is opened, a trigger ON string and a trigger OFF string are displayed as "*" and "-" respectively when output in a CSV file.

*2 The number of digits after decimal point indicates the maximum number of digits, therefore all of the specified number of digits are not always displayed.
(Example) For 1.2345, '1.2345' is output, not '1.2345000'.

Saving displayed trend graphs to image file

RCPU R Analog QnUDVCPU High Speed Data Logger High Speed Data Communication Q Analog LCPU L Analog BOX Data Logger Others

Save a captured image of the active trend window to a file.

Click the [Save] button to save the image of an active trend window.

Operating procedure

1. Select [File] ⇨ [Save As] ⇨ [Save Image File] (🔳).

2. Select a file format (BMP/JPG/PNG) to be used from "Save as type".

3. Enter a file name and click the [Save] button.

12.3 Saving Displayed Events

RCPU ✕ R Analog ✕ QnUDVCPU ✕ High Speed Data Logger High Speed Data Communication ✕ Q Analog ✕ LCPU ✕ L Analog ✕ BOX Data Logger Others ✕

This section explains how to save events displayed on the active event window to either of the following file.

File format	Reference
CSV file	Page 145 Saving displayed events to CSV file
Image file	Page 147 Saving displayed events to image file

Saving displayed events to CSV file

RCPU ✕ R Analog ✕ QnUDVCPU ✕ High Speed Data Logger High Speed Data Communication ✕ Q Analog ✕ LCPU ✕ L Analog ✕ BOX Data Logger Others ✕

Save events being displayed in the event list of active event window to a CSV file.

When saving events displayed in the Historical event list, event logging names and comments are saved in the language specified in the language selection setting.

The data to be saved is as follows:
- Historical event list: Events of an Event logging file being displayed are saved.
- Realtime event list: Events received from the start of monitoring to the click of the [Save] button are saved.

Operating procedure

1. Select [File] ⇨ [Save As] ⇨ [Save CSV File] (▣).

2. Enter a file name, and click the [Save] button.

Format specification of CSV file

The CSV file format explained below differs from the CSV file format obtained from Data logger. For details on the CSV file format of Data logger, refer to the following manuals.

📖 High Speed Data Logger Module User's Manual

📖 BOX Data Logger User's Manual

■Data logger

Item	Description
Delimiter	, (comma)
Linefeed code	CRLF (0x0D, 0x0A)
Character code	ASCII
Number of rows	Maximum number of rows: 200003 rows (data rows + 3)

Ex.

Output data of rows/ columns	Column number	Column name	Output data
■File information row	1st column	File type	File type of output file Fixed value: [EVENT]
	2nd column	Type information_file version	Version of type information/output file Fixed value: 1
	3rd column	Number for data type information row	Number indicating the data type information row Fixed value: 2
	4th column	Number for data name row	Number indicating the data name row Fixed value: 3
	5th column	Number for data starting rows	Starting number of data rows Fixed value: 4
■Data type information row	1st column	Date and time column	Data type of date and time column Fixed string: DATETIME[YYYY/MM/DD hh:mm:ss
	2nd column	Microsecond column	Data type of microsecond column of date and time Fixed string: μs]
	3rd column	Number column	Data type of number column Fixed string: SHORT[DEC.0]
	4th column	Event logging name column	Data type of event logging name column Fixed string: STRING[64][*1]
	5th column	Occurrence type column	Data type of occurrence type column Fixed string: SHORT[DEC.0]
	6th column	Occurrence comment column	Data type of the occurrence comment column Fixed string: STRING[64][*1]
	7th column	Occurrence condition value column	Data type of occurrence condition value column Fixed string: STRING[4623][*1]
■Data name row	1st column	Date and time column	Title of the Date and time column Fixed string: TIME
	2nd column	Microsecond column	Title of microsecond column of the data and time Fixed string: μsec
	3rd column	No. column	Title of the No. column Fixed string: NUMBER
	4th column	Event logging name column	Title of the Event logging name column Fixed string: EVENT
	5th column	Occurrence type column	Title of the Occurrence type column Fixed string: STATUS
	6th column	Occurrence comment column	Title of the Occurrence comment column Fixed string: COMMENT
	7th column	Occurrence condition value column	Title of the Occurrence condition value column Fixed string: VALUES
■Data row	For saving data displayed in a historical event window, data is output in the order that it was stored in an Event logging file. For saving data displayed in a realtime event window, data is output in the order that it was received.		

*1   A number enclosed with [ ] indicates the maximum number of characters (unit: byte).

Saving displayed events to image file

RCPU ✗ R Analog ✗ QnUDVCPU ✗ **High Speed Data Logger** High Speed Data Communication ✗ Q Analog ✗ LCPU ✗ L Analog ✗ **BOX Data Logger** Others ✗

Save a captured image of the active event window to a file.

When the [Save] button is clicked, the image of an active event window is saved.

Operating procedure

1. Select [File] ⇨ [Save As] ⇨ [Save Image File] (📷).

2. Select a file format (BMP/JPG/PNG) to be used from "Save as type".

3. Enter a file name, and click the [Save] button.

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13 PRINTING TREND GRAPHS

The trend graph print function is a function used to print the trend graph on the screen while a Historical trend graph, Realtime trend graph, Realtime monitor graph is being displayed.

A graph area and a graph legend area displayed on an active trend window are printed.

Information such as connection target, data logging name, cursor time can also be printed in a header or footer.

13.1 Print Settings

This section explains the setting methods for printing.

Window

Select [File] ⇨ [Print] (🖨).
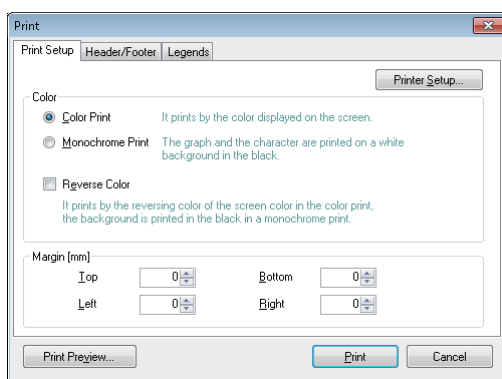
Operating procedure

1. Set the print color and margin.

2. Click the [Print Preview] button and check the print preview. (☞ Page 149 Checking Print Preview)

3. Click the [OK] button.

■Setting printer

1. Click the [Print Setup] button.

2. Specify the number of copies and a printer to be used, and click the [OK] button.

■Setting header/footer
Click the [Header/Footer] tab to set the print header and footer.

■Setting graph legend output
Click the [Legends] tab to set the output contents of graph legends.

13.2 Checking Print Preview

Click the [Print Preview] button on the "Print Preview" screen to check output images.

Header information

Graph legends

Footer information

Graph area

Sampling start time   Plot display   Sampling end time
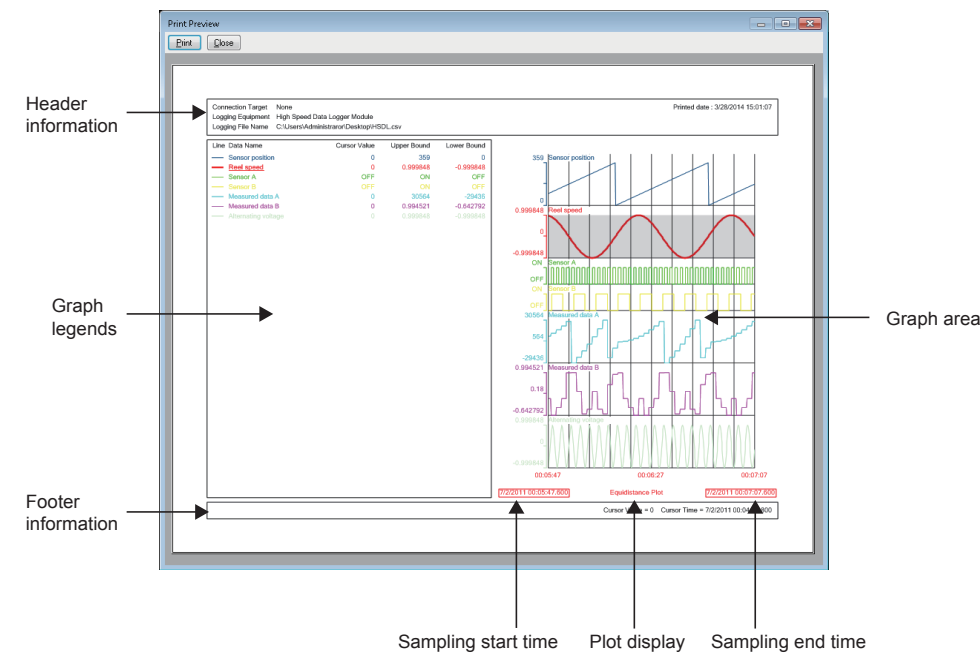
14 HELP MENU

14.1 Opening Manual

Open the operating manual of GX LogViewer.

Operating procedure

Select [Help] ⇨ [Open Manual].

14.2 Connecting to MITSUBISHI ELECTRIC FA Global Website

Display the MITSUBISHI ELECTRIC FA Global Website on a web browser.

Connect the personal computer to the Internet in advance.

Operating procedure

Select [Help] ⇨ [Connection to MITSUBISHI ELECTRIC FA Global Website].

14.3 Version Information

This function displays the version information of GX LogViewer.

Operating procedure

Select [Help] ⇨ [About GX LogViewer].

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15 TROUBLESHOOTING

This chapter explains the errors which may occur when using GX LogViewer, and corrective actions correspond to those errors.

Symptom	Check point	Corrective action
Cannot communicate with the module. (Cannot operate online)	Is there a disconnection along the connection route?	• Connect the cables properly. • Replace the cable with new one.
	Is the IP address duplicated?	Correct the IP address.
	Does a firewall or proxy server exist along the connection route?	Ask your network administrator about the firewall and proxy server settings.
	Is Windows® firewall enabled on the personal computer?	Disable Windows® firewall on the personal computer when using the module search function or direct connection.
	Is antivirus software blocking Ethernet communications?	• Change the antivirus software settings to allow Ethernet communications. • Lower the antivirus software's security setting level. • Stop the antivirus software.
	Is there any problem on the personal computer?	Replace it with another personal computer.
	Are the authorities of the user logged on to Windows® sufficient?	• For Windows® XP, logon as a user with a "limited" or higher user account. • For Windows Vista® or later, logon as a user with a "standard" or higher user account.
	Are multiple IP addresses enabled at the same time on the personal computer side?	• For a direct connection, make sure multiple IP addresses are not enabled at the same time on the personal computer. • For a direct connection, disable the wireless LAN function.
	Is "Direct Connection" specified on the "Transfer Setup" screen for Data logger/Data communication?	For the direct connection, connect a Data logger/Data communication and a personal computer on a 1:1 basis. ☞ Page 25 For direct connection
An error message is displayed when opening a logging file.	Is the logging file with only header line displayed?	After outputting the data, open the storage file.
	Is the logging file corrupted?	Check the file.
A dashed-dotted line is displayed.	Has missing data occurred? ☞ Page 104 Graph Display for Missing Data or Time Reversed Data	Correct the data logging setting on the configuration tool to prevent the occurrence of missing data.
A dashed-dotted line is displayed on the realtime trend window.	Is logging of data displayed on the realtime trend window stopped because the number of saved files exceeded?	Delete the unnecessary saved files using the configuration tool, and restart the data logging.
A process of "Open Logging File" or "Save Logging File to PC" function is slow.	Is Ethernet connected?	The TCP connection is recommended for the Ethernet connection since a longer processing time is required for "Open Logging File" or "Save Logging File to PC" function when using the Ethernet direct connection or the UDP connection.

When an abnormality exists in a module, functions of GX LogViewer may not operate normally. Refer to the user's manual of each CPU and perform troubleshooting.

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APPENDIX

Appendix 1 USB Driver Installation

To communicate with a CPU module via USB, a USB driver needs to be installed.

The following explains the USB driver installation procedure.

If multiple MELSOFT products are installed previously, refer to the folder where the first MELSOFT product is installed.

Windows® XP

Operating procedure

1. Connect the personal computer and the CPU module with a USB cable, and power ON the programmable controller.

2. Select "Install from a list or specific location [Advanced]" on the "Found New Hardware Wizard" screen.

3. Select "Search for the best driver in these locations" on the next screen. Select "Include this location in the search" and specify "MELSOFT\Easysocket\USBDrivers" in the folder where GX LogViewer has been installed.

Precautions

If the USB driver cannot be installed, check the following settings of Windows®.

If "Block — Never install unsigned driver software" is selected under [Control Panel] ⇨ [System] ⇨ [Hardware] ⇨ [Driver Signing], the USB driver may not be installed.

Select "Ignore — Install the software anyway and don't ask for my approval", or "Warn — Prompt me each time to choose an action" in [Driver Signing], and install the USB driver.

Windows Vista®

Operating procedure

1. Connect the personal computer and the CPU module with a USB cable, and power ON the programmable controller.

2. Select "Locate and install driver software (recommended)" on the "Found New Hardware" screen.

3. Select "Browse my computer for driver software (advanced)" on the "Found New Hardware" screen.

4. Select "Search for the best driver in these locations." on the next screen. Select "Include subfolders" and specify "MELSOFT\Easysocket\USBDrivers" in the folder where GX LogViewer has been installed on the next screen.

Precautions

When the "Windows can't verify the publisher of this driver software screen" is displayed during the installation, select "Install this driver software anyway".

Windows® 7 or later

Operating procedure

1. Connect the personal computer and the CPU module with a USB cable, and power ON the programmable controller.

2. Select [Control Panel] ⇨ [System and Security] ⇨ [Administrative Tools] ⇨ [Computer Management] ⇨ [Device Manager] from Windows® Start[*1]. Right-click "Unknown device" and click "Update Driver Software".

3. Select "Browse my computer for driver software" on the "Update Driver Software" screen. Specify "MELSOFT\Easysocket\USBDrivers" in the folder where GX LogViewer has been installed on the next screen.

*1   Select [All apps] on the Start screen or [Start] ⇨ [All Programs].

Appendix 2 Added and Changed Functions

The following table shows the functions added and changed in GX LogViewer and the applicable software version. SW1DNN-VIEWER-J (Japanese), SW1DNN-VIEWER-E (English) and SW1DNN-VIEWER-C (Chinese) are integrated into SW1DNN-VIEWER-M (Multiple languages) Version 1.46Y.

• SW1DNN-VIEWER-M (Multiple languages)

Added/changed contents	Applicable software version
Switching the display language is supported.	1.46Y or later
Displaying the data saved with the following tool is supported. • FLEXIBLE HIGH-SPEED I/O CONTROL Module Configuration tool	
Displaying the data logged by the following modules is supported. • RnENCPU (R04ENCPU, R08ENCPU, R16ENCPU, R32ENCPU, and R120ENCPU) • RnSFCPU (R08SFCPU, R16SFCPU, R32SFCPU, and R120SFCPU)	1.49B or later
In the realtime monitor function of RCPU, specifying the step relay with a block specification (BL□\S) to the device set on the [Monitor Target Setting] tab and the device set on "Timing Condition" in the [Monitor Condition Setting] tab on the "Realtime Monitor Setting" screen is supported.	

• SW1DNN-VIEWER-J (Japanese)

Added/changed contents	Applicable software version
Windows[®] 7 (32-bit version) is supported.	1.03D or later
Displaying the data which contains the following languages is supported. • Chinese (Simplified) • English • Japanese	1.04E or later
Displaying the data which contains the following languages and character code is supported. • Chinese (Traditional) • Korean • Unicode (UTF-8)	1.07H or later
The Jump Cursor function can be executed by searching value.	1.10L or later
Windows[®] 7 (64-bit version) is supported.	
Displaying the data logged by the following modules is supported. • MELSEC-Q series High Speed Analog-Digital Converter Module (Q64ADH) • MELSEC-L series Analog-Digital Converter Module (L60AD4)	1.15R or later
Displaying the date on a time scale label is supported.	
The automatic reflection of the graphical display setting when displaying trend window is supported.	
Initializing graphical display of the trend graph being displayed is supported.	
Displaying the data logged by the following modules is supported. • MELSEC-Q series Current Transformer Input Module (Q68CT)	1.18U or later
Expand the maximum display point of the trend graph on one screen from 65535 to 100000, and the maximum save number of lines to the CSV file from 131073 to 200003 (data row+3).	1.20W or later
The plot format of the historical trend graph being displayed can be changed from equidistance plot format, which is conventional display format, to time interval plot format.	
When displaying with time interval plot format, logging data of another file can be added to the trend graph being displayed.	
When displaying logging data of multiple files on a trend graph, the graphs can be moved to left or right.	
Displaying sampling trace data in GX LogViewer format saved with GX Works2 Version 1.90U or later is supported.	
Displaying the data logged by the following modules is supported. • QCPU (Q03UDVCPU, Q04UDVCPU, Q06UDVCPU, Q13UDVCPU and Q26UDVCPU) • LCPU (L26CPU) • MELSEC-L series Analog-Digital Converter Module (L60AD4-2GH)	1.25B or later
Displaying the data logged by the following modules is supported. • LCPU (L06CPU)	1.26C or later
Displaying the data logged by the following modules is supported. • QCPU (Q04UDPVCPU, Q06UDPVCPU, Q13UDPVCPU and Q26UDPVCPU) • LCPU (L06CPU-P and L26CPU-P) • MELSEC-L series Analog Input/Output Module (L60AD2DA2) • Logging Unit for Energy Measuring Unit (EcoMonitorLight) (EMU4-LM)	1.30G or later
Windows[®] 8 (32-bit version and 64-bit version) is supported.	
Displaying the data logged by the following modules is supported. • MELSEC-Q series High Speed Data Communication Module (QJ71DC96)	1.31H or later

Added/changed contents	Applicable software version
The transparent function of GOT2000 is supported.	1.33K or later
Displaying the data logged by the following modules is supported. • BOX Data Logger (NZ2DL)	
Displaying the data logged by the following modules is supported. • RCPU (R04CPU, R08CPU, R16CPU, R32CPU, and R120CPU) • MELSEC iQ-R series analog module (R60AD4, R60ADV8 and R60ADI8)	1.35M or later
Windows® 8.1 (32-bit version and 64-bit version) is supported.	
Realtime monitor display of data obtained by the following modules is supported. • LCPU (L02CPU, L02CPU-P, L06CPU, L06CPU-P, L26CPU, L26CPU-P, L26CPU-BT, and L26CPU-PBT)	1.37P or later
Realtime monitor display of data obtained by the following modules is supported. • RCPU (R04CPU, R08CPU, R16CPU, R32CPU, and R120CPU)	1.40S or later
The offline realtime monitor setting is supported.	
Displaying a realtime monitor window as a frequently-used window configuration and a recent window is supported.	
Displaying the data logged by the following modules is supported. • RnPCPU (R08PCPU, R16PCPU, R32PCPU, and R120PCPU)	1.43V or later
The font size in the graph legend area can be adjusted.	
The upper and lower limit display values can be edited in batch.	
Displaying/hiding grids can be switched. In addition, displaying the horizontal lines as the grid is supported.	
Graph drawing using OpenGL® is supported.	

• SW1DNN-VIEWER-E (English)

Added/changed contents	Applicable software version
Displaying the data which contains the following languages is supported. • Chinese (Simplified) • English • Japanese	1.04E or later
The following operating systems are supported. • Simplified Chinese version • Traditional Chinese version	
Windows® 7 (32-bit version) is supported.	
Displaying the data which contains the following languages and character code is supported. • Chinese (Traditional) • Korean • Unicode (UTF-8)	1.07H or later
Korean version of operating system is supported.	
The Jump Cursor function can be executed by searching value.	1.10L or later
Windows® 7 (64-bit version) is supported.	
Displaying the data logged by the following modules is supported. • MELSEC-Q series High Speed Analog-Digital Converter Module (Q64ADH) • MELSEC-Q series Current Transformer Input Module (Q68CT) • MELSEC-L series Analog-Digital Converter Module (L60AD4)	1.18U or later
Displaying the date on a time scale label is supported.	
The automatic reflection of the graphical display setting when displaying trend window is supported.	
Initializing graphical display of the trend graph being displayed is supported.	
Expand the maximum display point of the trend graph on one screen from 65535 to 100000, and the maximum save number of lines to the CSV file from 131073 to 200003 (data row+3).	1.26C or later
The plot format of the historical trend graph being displayed can be changed from equidistance plot format, which is conventional display format, to time interval plot format.	
When displaying with time interval plot format, logging data of another file can be added to the trend graph being displayed.	
When displaying multiple file logging data on the trend graph, the graph can be moved to left or right.	
Displaying sampling trace data in GX LogViewer format saved with GX Works2 Version 1.91V or later is supported.	
Displaying the data logged by the following modules is supported. • QCPU (Q03UDVCPU, Q04UDVCPU, Q06UDVCPU, Q13UDVCPU and Q26UDVCPU) • LCPU (L06CPU and L26CPU) • MELSEC-L series Analog-Digital Converter Module (L60AD4-2GH)	
Windows® 8 (32-bit version and 64-bit version) is supported.	1.32J or later
The transparent function of GOT2000 is supported.	
Displaying the data logged by the following modules is supported. • LCPU (L06CPU-P and L26CPU-P) • MELSEC-L series Analog Input/Output Module (L60AD2DA2) • MELSEC-Q series High Speed Data Communication Module (QJ71DC96) • Logging Unit for Energy Measuring Unit (EcoMonitorLight) (EMU4-LM)	
Displaying the data logged by the following module is supported. • BOX Data Logger (NZ2DL)	1.34L or later
Displaying the data logged by the following modules is supported. • RCPU (R04CPU, R08CPU, R16CPU, R32CPU, and R120CPU) • MELSEC iQ-R series analog module (R60AD4, R60ADV8 and R60ADI8)	1.35M or later
Windows® 8.1 (32-bit version and 64-bit version) is supported.	
Realtime monitor display of data obtained by the following modules is supported. • LCPU (L02CPU, L02CPU-P, L06CPU, L06CPU-P, L26CPU, L26CPU-P, L26CPU-BT, and L26CPU-PBT)	1.40S or later
The offline realtime monitor setting is supported. • RCPU (R04CPU, R08CPU, R16CPU, R32CPU, and R120CPU)	
Displaying a realtime monitor window as a frequently-used window configuration and a recent window is supported.	
Displaying the data logged by the following modules is supported. • RnPCPU (R08PCPU, R16PCPU, R32PCPU, and R120PCPU)	1.43V or later
The font size in the graph legend area can be adjusted.	
The upper and lower limit display values can be edited in batch.	
Displaying/hiding grids can be switched. In addition, displaying the horizontal lines as the grid is supported.	
Graph drawing using OpenGL® is supported.	

• SW1DNN-VIEWER-C (Chinese)

Added/changed contents	Applicable software version
Displaying the data which contains the following language is supported. • Chinese (Simplified) • English • Japanese	1.04E or later
The following operating systems are supported. • Simplified Chinese version • Traditional Chinese version	
Windows® 7 (32-bit version) is supported.	
Displaying the data which contains the following language and character code is supported. • Chinese (Traditional) • Korean • Unicode (UTF-8)	1.07H or later
The Jump Cursor function can be executed by searching value.	1.10L or later
Windows® 7 (64-bit version) is supported.	
Displaying the data logged by the following module is supported. • MELSEC-Q series High Speed Analog-Digital Converter Module (Q64ADH) • MELSEC-Q series Current Transformer Input Module (Q68CT) • MELSEC-L series Analog-Digital Converter Module (L60AD4)	1.18U or later
Displaying the date on a time scale label is supported.	
The automatic reflection of the graphical display setting when displaying trend window is supported.	
Initializing graphical display of the trend graph being displayed is supported.	
Expand the maximum display point of the trend graph on one screen from 65535 to 100000, and the maximum save number of lines to the CSV file from 131073 to 200003 (data row+3).	1.26C or later
The plot format of the historical trend graph being displayed can be changed from equidistance plot format, which is conventional display format, to time interval plot format.	
When displaying with time interval plot format, logging data of another file can be added to the trend graph being displayed.	
When displaying multiple file logging data on the trend graph, the graph can be moved to left or right.	
Displaying sampling trace data in GX LogViewer format saved with GX Works2 Version 1.91V or later is supported.	
Displaying the data logged by the following modules is supported. • QCPU (Q03UDVCPU, Q04UDVCPU, Q06UDVCPU, Q13UDVCPU and Q26UDVCPU) • LCPU (L06CPU and L26CPU) • MELSEC-L series Analog-Digital Converter Module (L60AD4-2GH)	

Appendix 3 PING Test

The following is an example for checking the connection by issuing the PING command to the module from a target equipment (personal computer) connected on the same Ethernet network (LAN).
(Example of checking the connection of Data logger/Data communication with a target equipment on the same network address)

Operating procedure

1. Select [Run] from Windows® Start, and enter 'cmd'. Then, click the [OK] button.

2. Enter the IP address of the Data logger/Data communication following 'ping' using the keyboard.

Example	>ping 192.168.3.3

3. Check the output result.

• When the communication is successful

```
>ping 192.168.3.3
Pinging 192.168.3.3 with 32 bytes of data:

Reply from 192.168.3.3: bytes=32 time<1ms TTL=128
Reply from 192.168.3.3: bytes=32 time<1ms TTL=128
Reply from 192.168.3.3 bytes=32 time<1ms TTL=128
Reply from 192.168.3.3: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.3.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

• When the communication is unsuccessful

```
>ping 192.168.3.3
Pinging 192.168.3.3 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 192.168.3.3:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

When the communication is unsuccessful, check the following items and perform the PING test again.
• Network settings for the Data logger/Data communication or the target equipment
• Cables, hub connection status, power status

Precautions

The PING test is only valid when the transfer setup method is "Connection via hub".

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REVISIONS

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